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# THE ANNUAL REPORT OF THE SCHOOLHOUSE DEPARTMENT

FROM FEBRUARY 1, 1908, TO  
FEBRUARY 1, 1909



CITY OF BOSTON  
PRINTING DEPARTMENT  
1909

Sup

Boston. Schoolhouse Department.  
July 10. 1909

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# BUILDINGS IN CHARGE OF SCHOOLHOUSE DEPARTMENT.

Number of Permanent School Buildings in charge of this Department . . . . .	229
Of the above, there are in use as storehouses, etc. . . . .	2
Number of Portable Buildings . . . . .	101
Number of Hired Buildings . . . . .	16
Giving Class Rooms to the number of . . . . .	33
Parcels of Land Hired . . . . .	3
Portables on above, giving Class Rooms to the number of, . . . . .	5
Number of New Buildings finished by Commission . . . . .	29
Number of Buildings under construction at the present time . . . . .	4

ANNUAL REPORT  
OF THE  
SCHOOLHOUSE DEPARTMENT

FOR THE YEAR ENDING JANUARY 31, 1909.

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REPORT OF THE COMMISSIONERS.

HON. GEORGE A. HIBBARD,  
*Mayor of the City of Boston:*

DEAR SIR,—In accordance with the provisions of chapter 473 of the Acts of 1901, the Board of Schoolhouse Commissioners submits herewith its seventh annual report, covering the period from February 1, 1908 to February 1, 1909.

I.

POWERS OF THE BOARD.

During the past year the Board has been subjected to a searching investigation by the Finance Commission of the City of Boston, and has profited by the wise criticism of that body. On the whole the suggestions made have been helpful and it is hoped that the efficiency of the work has been increased. Some of the investigations, as *e. g.*, into the cost of boiler repairs, referred to old conditions which had already been remedied. As the contractors involved appeared to have been dishonest, the investigation was necessary. Any investigation interferes somewhat with the routine of the department, and much of the usual summer work was

undertaken late and caused some inconvenience at the opening of the schools, which the Board regrets. The gain, however, has been substantial.

The Board, following the lines indicated in previous reports, has now firmly established the divisions that have charge of the engineering,—civil, heating and electrical,—and is prepared to establish the architectural division on an equally firm footing. When the Board employed engineers outside of the department for heating and electrical engineering, it paid sometimes as much as \$20,000 a year for service which was confined almost exclusively to new buildings. This work is now done by its own employees, whose pay roll in both branches is about \$16,290 a year. With this force all the new buildings now in hand, except the Mechanic Arts High, are being done, all the major repairs, and all the miscellaneous heating and electrical work of the department. Much of the salary paid is offset by a more efficient and more economical execution of the repair work.

The appropriation for new buildings is \$500,000 a year, and the architect's commission on this amount would be at least \$25,000. If the Finance Commission, as is presumed, were looking toward economy, it would be in line with this to make the architectural division as thoroughly efficient as the engineering divisions, and save a portion of the amount now paid out annually for architectural service. An increase of \$10,000 or \$12,000 in the present force would put this division on a basis that would enable them to handle all the new buildings and increase substantially the efficiency of the miscellaneous work now handled by the architectural division. This seems to be the logical step forward in the development of the department.

When the Board was first established, it was essential that it should have outside assistance in engineering and architecture, but in the seven years of its existence, with the help of an excellent firm of domestic engineers and some of the ablest architects in the city, the problems of school planning have been so carefully studied and systematized as to make it possible for the Board to undertake intelligently and efficiently all this work. It would not, of course, be possible to take over all this work at once, just as it was impossible to take over all the domestic engineering at once. Although Mr. Eveleth has been in charge of the heating and Mr. Hatch of the electrical work for nearly two years, Messrs. French and Hubbard are still employed by the Board on the Mechanic Arts High School, now approaching completion; but if a competent head were found for the architectural



division the Board could gradually take charge of this work and eventually execute the whole of it.

With a competent paid board in control, there would be no such danger as attended the office of City Architect, for the head of the architectural division would be appointed under a civil service examination, and the members of the Board would be, as now, directly responsible to your Honor.

Each year the Board has in its reports urged a larger appropriation for repairs, and now, in view of the fact that the appropriation for land and buildings makes no special provision for administration expenses, and the Board may be called upon to pay all of these out of the repair appropriation it seems essential that this should be increased. Quite apart from other considerations, it is desirable that the administration expenses should come out of one account, and not be divided arbitrarily between two; and the appropriation which comes from the tax levy for current expenditures seems the proper place for the total expenses of the department to appear.

For the actual needs of repairs and new equipment, the Board can, for the first time, report that the 25 cents on \$1,000 appears to be adequate, but it is not sufficient to cover the administration — some \$70,000 — as well. That the repair appropriation has not been overrun this year is due to the most rigid economy on the part of the Board, the elimination of every expense that could be either avoided or postponed, and improved methods in handling the work. In some of these matters the Board acknowledges with thanks the assistance and advice given by the Finance Commission. It is also due in part to the fact that repairs which come under the head of protection in case of fire, fire-proofing basements, fire-alarm signals, and fire escapes, to the amount of \$84,510.32 were paid out of a special appropriation taken from land and buildings. If proper provision can be made for administration expenses, the Board believes that the work of repair and new equipment can be cared for under the present appropriation.

## II.

### WORK EXECUTED UNDER THE APPROPRIATION FOR LAND AND BUILDINGS FOR SCHOOLS.

The work done this year by the Board will be considered under four heads:

1. Report of progress on buildings described last year and on the new work undertaken since then.

2. The revision of standards of cost to agree with reduced size of rooms.
3. Future accommodation.
4. Report on fire protection.

(1.) REPORT OF PROGRESS ON BUILDINGS DESCRIBED LAST YEAR, AND ON NEW BUILDINGS UNDERTAKEN SINCE THEN.

Of the items reported upon last year, eleven were connected with previous loans and six were the items belonging to the appropriation for 1907-1908. The eleven were (1) Charlestown High School; (2) Normal group; (3) Dorchester High Annex; (4) High School of Commerce; (5) Quincy Manual Training School; (6) Blackinton; (7) Dudley district; (8) Longfellow Addition; (9) Robert G. Shaw District, Mt. Vernon Street and Germantown; (10) Bennett District, addition to Hobart Street School; (11) Edward Everett District.

Of these the Dorchester High Annex, the Blackinton, the Dudley, the Longfellow Addition and the Edward Everett are provided for in the 1908-09 list, and are reported on later. On the Charlestown High, the Normal Group, the Quincy Manual Training School and the Bennett nothing remains but to report the final figures, which are as follows:

(a.) *The Charlestown High School:*

	Original Contracts.	Final Contracts.
General contract . . .	\$239,137 00	\$229,022 79
Granite contract . . .	67,000 00	67,033 00
	<hr/>	<hr/>
	\$306,137 00	\$296,055 79
	<hr/>	<hr/>

(b.) *The Normal Group:*

	Original Contracts.	Final Contracts.
General contract . . .	\$663,980 00	\$678,450 93
Heating contract . . .	45,882 00	61,974 64
Plumbing contract . . .	29,062 00	32,128 91
Electric contract . . .	20,360 00	30,462 78
	<hr/>	<hr/>
	\$759,284 00	\$803,017 26
	<hr/>	<hr/>

(c.) *The Quincy Manual Training School:*

	Original Contracts.	Final Contracts.
General contract . . .	\$13,796 00	\$15,616 17
	<hr/>	<hr/>

(d.) *The Bennett District Elementary School:*

	Original Contracts.	Final Contracts.
General contract . . .	\$9,200 00	\$10,554 24
Heating contract . . .	1,052 00	1,190 00
	<u>\$10,252 00</u>	<u>\$11,744 24</u>

This leaves only the High School of Commerce and the Robert G. Shaw, Germantown. On the former the Board reports that as yet the School Committee has taken no action locating the new building and no appropriation has been asked for. With the erection of the Brimmer-Winthrop School, it is possible that the Winthrop site, or a new site purchased with the proceeds of the sale of the Winthrop and Mason street properties, might be available for the new High School of Commerce.

In the Robert G. Shaw District land has been voted by the Board, but the taking has not been made by the Street Commissioners, owing to the fact that the Board inadvertently voted more land (over two acres) than is legally permissible, and it is necessary to run new lines. This will be settled shortly.

The list of items furnished by the School Committee for 1907-08 is as follows:

	Pupils.
1. Agassiz district, elementary school, lower grades, .	264
2. Wells district, elementary school, lower grades, .	300
3. Bennett district, elementary school, lower grades, .	100
4. Adams district elementary school, lower grades, .	200
5. Prince district, high school (Mechanic Arts High School) . . . . .	800
6. Phillips district, elementary school, upper grades .	880
7. Edward Everett district, elementary school, upper grades . . . . .	616
8. Brimmer district, elementary school, upper grades .	1,496

On June 29, 1907, as previously reported (Report of 1907-08, page 8), the Board returned the list of items, with the appropriation for each item, as follows:

<i>Item No. 1.</i> —Agassiz district, elementary school, upper grades (building and furnishing) . . .	\$62,000
<i>Item No. 2.</i> —Wells district, elementary school, lower grades (building and furnishing). . . . .	50,000
<i>Item No. 3.</i> —Bennett district, elementary school, lower grades (building and furnishing) . . . . .	15,000
<i>Carried forward</i> . . . . .	<u>\$127,000</u>

<i>Brought forward</i> . . . . .	\$127,000
<i>Item No. 4.</i> —Adams district, elementary school, lower grades (building and furnishing) . . . . .	15,000
<i>Item No. 5.</i> —Prince district, high school (Mechanic Arts High School) (building and furnishing) . . . . .	500,000
<i>Item No. 6.</i> —Phillips district, elementary school, upper grades (land, building and furnishing) . . . . .	358,000
	<hr/> <hr/>
	\$1,000,000

Items Nos. 7 and 8 were thereby eliminated as the six items exhausted the available appropriation.

*Item 1.*—Formerly the *Agassiz district*, now the *Francis Parkman*. The cost of this to date was reported last year. The figures to date are:

	Original Contracts.	Contracts to Date.
Building contract . . . . .	\$32,400 00	\$34,404 36
Plumbing contract . . . . .	1,750 00	2,059 55
Heating contract . . . . .	6,077 00	6,067 00
Electrical contract . . . . .	4,692 00	4,454 81
	<hr/> <hr/>	<hr/> <hr/>
	\$44,919 00	\$46,985 72

The building was completed and occupied September 9, 1908. The needed additional yard room was obtained by the purchase of approximately 10,200 square feet, adjoining on the north, for which a settlement has not yet been made, but for which \$4,500 has been set aside. This was taken care of by tailings from the old appropriations. This land will be graded and made available for use by the school in the spring

The building is now a complete school of upper elementary grade. There are 40,219 square feet in the lot; the building contains fourteen class-rooms, six of the old and eight of the new standard size (one of the former is now used as a kindergarten), a cooking room on the top floor, a manual training room in the basement and an assembly hall. The total cost of the building to date (three different building operations) was \$119,869.86. With 620 pupils, this is \$193.33 per pupil, a high cost for a building of second class construction.

*Item 2.*—*Wells district*. \* A six-room addition to the Winchell School. This was reported complete last year.

*Item 3.*—*Bennett district*. \* A two-room addition to the Hobart Street School. This was reported complete last year.

*Item 4.*—*Adams district*. \* Four portables in the Plummer yard. This was reported complete last year.

\* This work, both drawings and superintendence, was done in the office of the Schoolhouse Department, and there was therefore no commission and no charge for clerk of the works.



*Item 5.—The Mechanic Arts High School.* As reported last year, this work is due to be completed February 22, 1909. The class rooms were completed and furnished January 1, 1909, and were occupied after the Christmas recess. The heating and electric plants were completed by November, 1908, and delivered to the School Committee in January, 1909. The alterations in the old building are now under way, and the whole of the work, both new building and old, will probably be completed on time. The amounts of the original contracts and the contracts to date are as follows:

	* Original Contracts.	* Contracts to Date.
Building contract . . . .	\$346,191 00	\$344,122 63
Heating contract . . . .	53,400 00	53,910 73
Plumbing contract . . . .	23,878 00	24,823 97
Electrical contract . . . .	32,250 00	33,294 00
	<hr/> \$455,719 00	<hr/> \$456,151 33

The completed building, erected at three different times, has cost \$648,564.09 to date, and accommodates 1,200 pupils. The portions built first were of second class construction, the new portion is first class. The cost per pupil is \$540.47. This includes laboratory but not shop equipment.

*Item 6.—Phillips district.*—The Finance Commission reported strongly in favor of locating a school on the embankment. The School Committee and the Superintendent, individually, expressed themselves in favor of this, provided another building could be given on the hill. The Park Department withdrew their opposition. By an act of the Legislature, chapter 524 of the Acts of 1908, this Board was authorized:

“To meet the expense of providing increased facilities for egress from school buildings in the City of Boston by means of the construction of fire escapes and otherwise, and of making alterations in existing school buildings in that city so as to render the occupants of said buildings less liable to injury in case of fire, the Board of Schoolhouse Commissioners of the city may use such portions of the appropriations heretofore made for furnishing additional accommodation for pupils in the various school districts, under the provisions of chapter 450 of the Acts of the year 1907 as the said Board of Schoolhouse Commissioners may certify in a writing, approved by the Mayor of the city, will remain unexpended after the additional accommodations for which said appropriations were made shall have been provided.”

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\* Including \$22,773 done before the contract was approved.

In view of these facts the Board, acting with the knowledge and approval of the School Committee, set aside \$115,000 of the \$358,000 appropriated under this item for the fire protection. The expenditure under this head is reported on later. With the balance they purchased land on Joy and South Russell streets, assigned to the building as architect Mr. James T. Kelley, who had been previously appointed for a West End item, and authorized him to proceed with plans for an eighteen-room, lower grade building.\* This completes the items on the list of 1907-09.

The new loan for 1908-09, in accordance with chapter 450 of the Acts of 1907, was again \$1,000,000. On March 19, 1908, the School Committee designated the following districts as those where new accommodations was needed:

	Pupils.
1. Edward Everett district, elementary school, upper grades	616
2. Brimmer district, elementary school, upper grades,	1,760
3. Eliot district, administrative office	
4. Blackinton district, elementary school, upper grades	704
5. Dudley district, elementary school, lower grades	528
6. Henry L. Pierce district, high school (Dorchester High)	420
7. Longfellow district, elementary school, lower grades,	352

On March 20, 1908, the Board returned this list, with the amounts of each item up to and including a total expenditure of \$1,000,000, as follows:

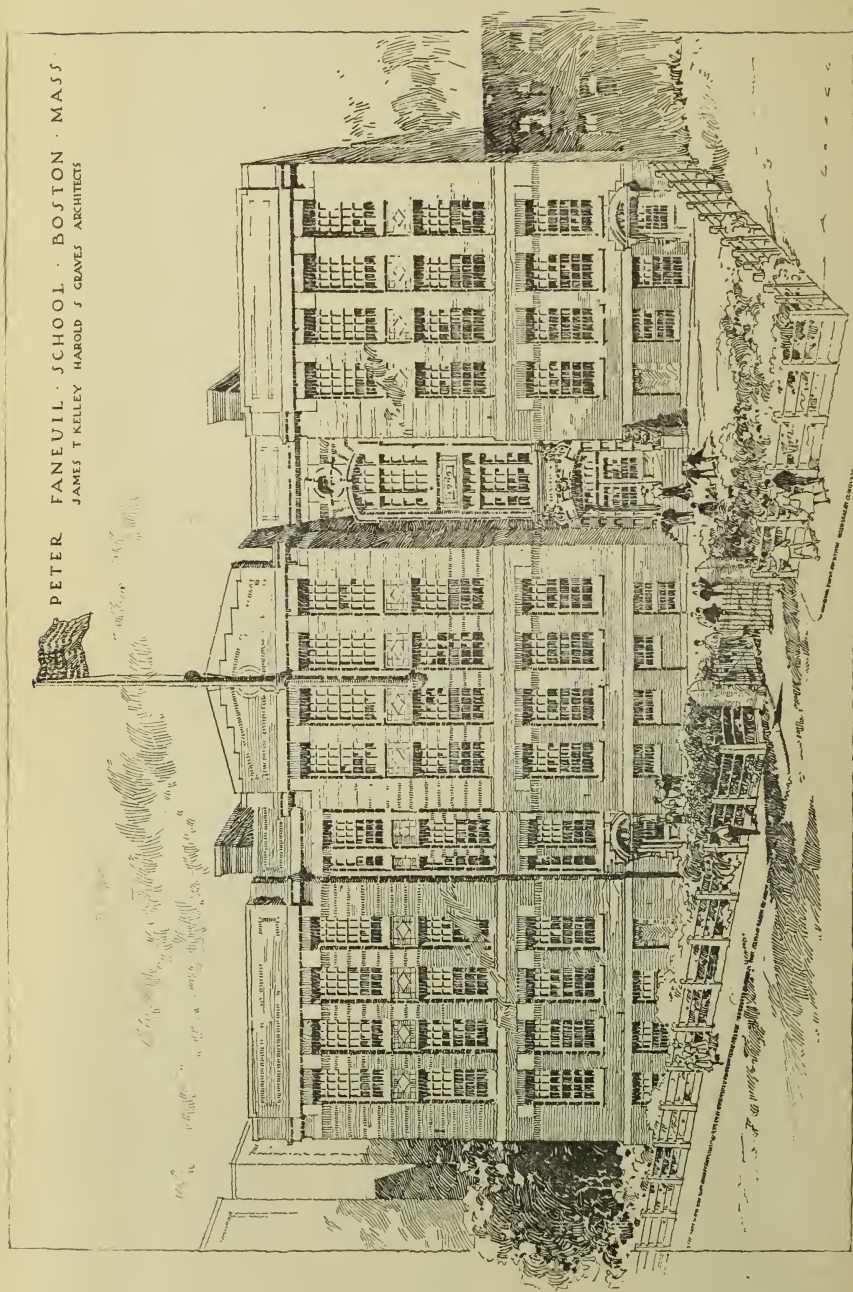
1. Edward Everett district, elementary school, upper grades	\$125,000
2. Brimmer district, elementary school, upper grades	450,000
3. Eliot district, administrative office	5,000
4. Blackinton district, elementary school, upper grades	140,000
5. Dudley district, elementary school, lower grades	105,000
6. Henry L. Pierce district, high school, (Dorchester High)	125,000
7. Longfellow district, elementary school, lower grades	50,000
	<hr/>
	<u>\$1,000,000</u>

\* The original item was a twenty-two room, upper elementary, *i. e.*, 880 pupils. As changed, with the knowledge and consent of the School Committee, it is an eighteen-room, lower elementary for 720 pupils.





PETER FANEUIL SCHOOL · BOSTON · MASS.  
JAMES T. KELLEY · HAROLD J. GRAVES · ARCHITECTS



PETER FANEUIL SCHOOL, JOY AND SOUTH RUSSELL STREETS.  
JAMES T. KELLEY, Architect.

For plans see page 73.

*Item 1.—The Edward Everett district*, an elementary school, upper grades. This school has been reported for the last three years. Last year it was stated that, the appropriation not being sufficient to cover the last two items on the list sent down by the School Committee, of which this item was one, it was necessarily postponed and would undoubtedly appear on the list for the year 1907–08. It was the first item mentioned on this year's list. As reported last year, land was taken for this school on March 20, 1907, and Mr. E. T. P. Graham was appointed architect on September 26, 1906. Immediately upon receipt of the new list from the School Committee, the plans were completed and the building was let in a single contract covering all trades on July 16, 1908, to John F. Griffin & Co. in the sum of \$123,400. The limit set for this building on the basis of a fourteen-room, upper elementary, with two rooms allowed for the hall was a sixteen-room building, with 30,000 cubic feet per room, and 22 cents per cubic foot, or \$105,600. The lowest bid was \$123,400. As this was far in excess of the amount allowed, the contractor, the architect and the engineers eliminated everything that could possibly be dispensed with, and when the contract was signed an order of deduction of \$18,331 was made, putting the cost practically at the limit. At present figures it makes about \$189.85 per pupil. Besides the fourteen class rooms the building will contain a cooking room, a manual training room and an assembly hall. It will be named the Edward Everett School. The work is progressing rapidly and is due to be completed on May 17, 1909.

	Original Contract.	Contract to Date.
General contract . . . . .	\$123,400 00	\$106,317 66

*Item 2.—Brimmer district*, elementary school, upper grades. This item appeared on the School Committee's list of 1907, but as the appropriation was insufficient it was postponed and appears on this year's list in the second place, with the accommodation increased from 1,496 to 1,760, that is, from 34 to 40 rooms. The Board voted, August 18, 1908, to appoint A. W. Longfellow architect of this building, and plans are now under way and nearly complete. As reported more fully under Item 6, \$10,000 was taken from this appropriation by a joint vote of the School Committee and the Board of Schoolhouse Commissioners in order to increase the accommodation in the Dorchester High Annex. It seemed likely, therefore, that the amount remaining might prove insufficient for the purchase of the land—



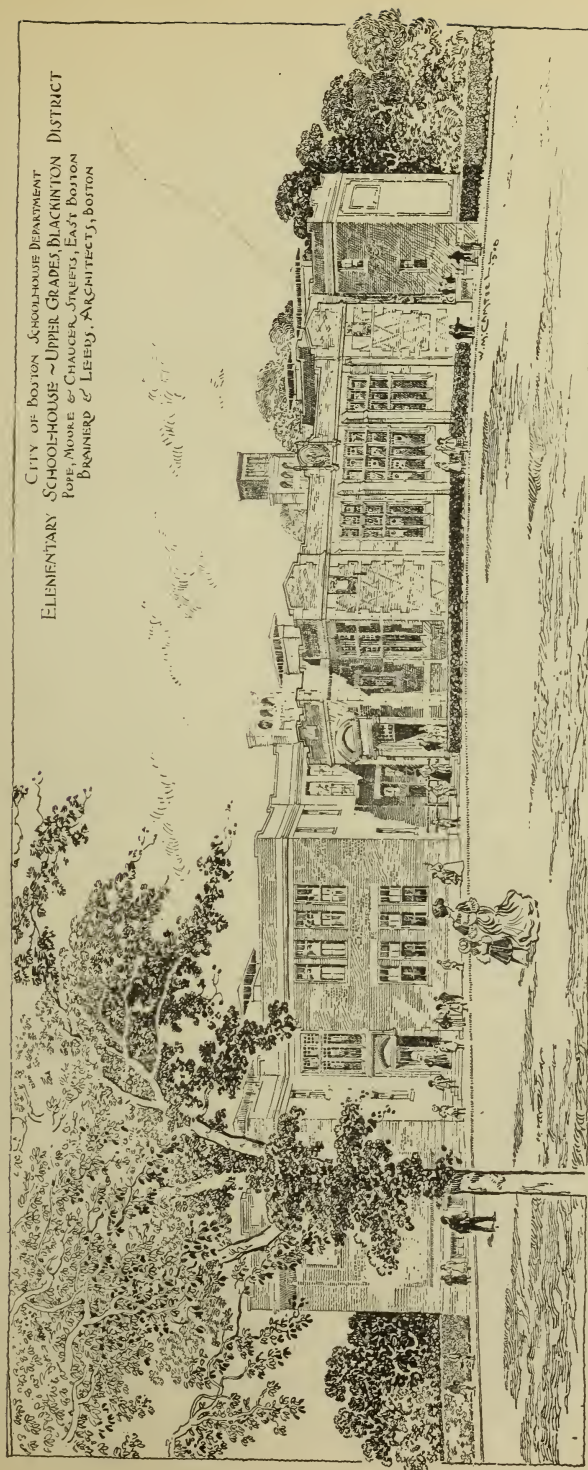
which was an uncertain element—and the erection of a building of the size required. The plans have been completed on the basis of forty rooms, which is the number required for 1,760 pupils. Nine rooms, three on each floor, are approximately the old standard and will accommodate about fifty pupils each, so that the building will seat more than the required number. The building will be used for both boys and girls, to take the pupils of the Brimmer and Winthrop Schools.

On June 2, 1908, the Board voted to advertise for land in the district designated by the School Committee, and on June 19 bids were received. The Board voted on August 1 to request the Street Commissioners to take certain land on Ferdinand, Knox, Fayette, Melrose and Bay streets, and a taking of this land was made on August 28, 1908. This lot contains about 37,870 square feet. The Board hopes that it will be possible to pay for the land and build the building with the balance of the appropriation remaining, \$440,000. The building will be named the Abraham Lincoln School.

*Item 3.—Eliot district*, administrative office. Plans and specifications for this building were made in the office of the Board and all superintendence was done by the architectural department, so that there was no extra expense for these items. On March 27, 1908, the contract for this building was awarded to William Crane, in the sum of \$4,036. The work was completed July 1, 1908, and the building occupied on September 9, 1908.

	Original Contract.	Completed Contract.
Building contract . . . . .	<u>\$4,036 00</u>	<u>\$4,256 93</u>

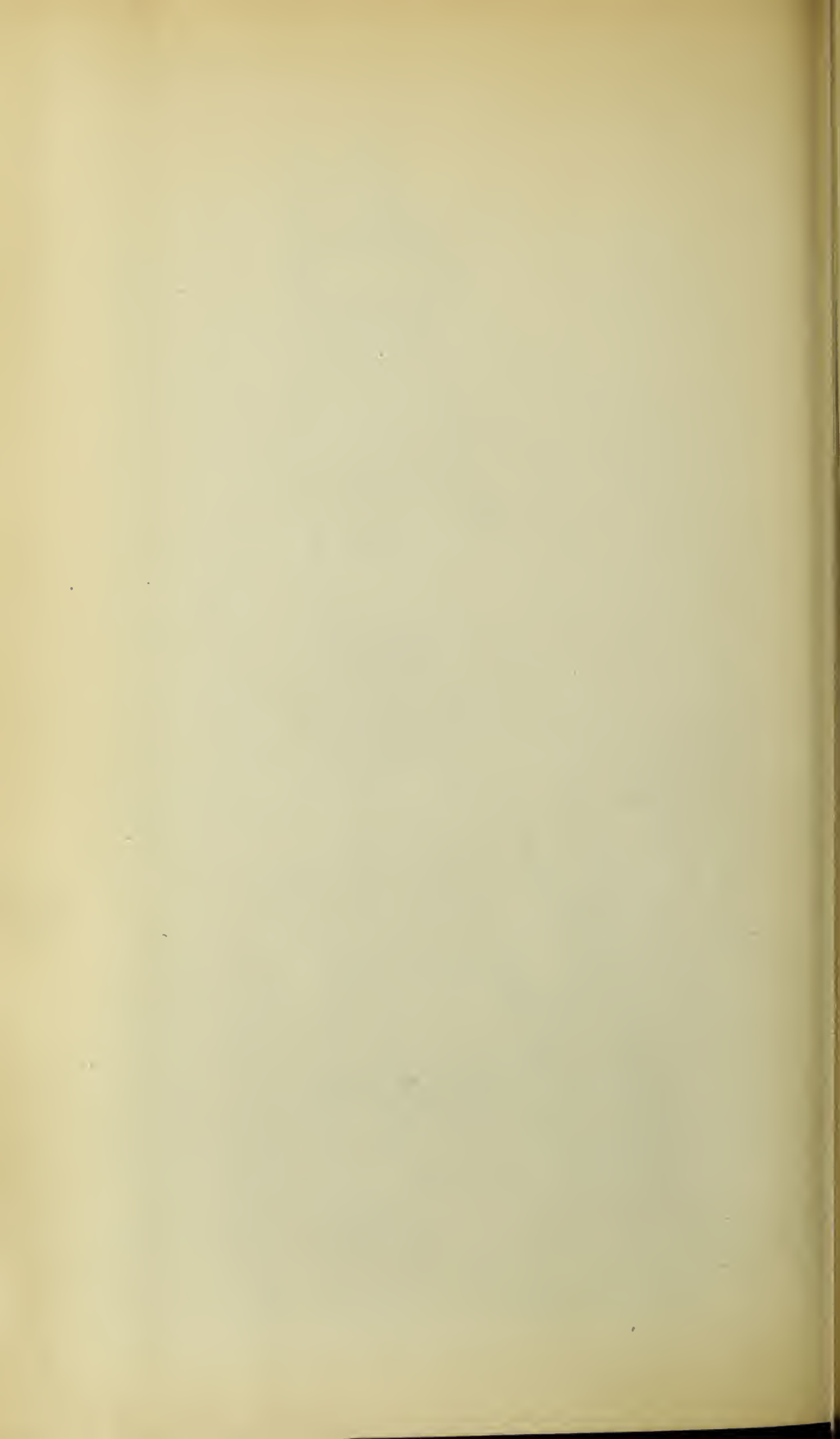
*Item 4.—Blackinton district*, elementary school, upper grades. Land was advertised for and, as stated on page 6 of last year's report, a taking was made on August 15, 1907, of 53,986 square feet of land on Moore and Chaucer streets, East Boston. The cost of this land was \$29,246.40. No further action was taken at that time as the building did not appear on the list of 1907-08. When the new list was received the matter was again taken up, and Messrs. Brainerd & Leeds were appointed architects on April 24, 1908. Plans were drawn and specifications submitted, and contracts have been awarded as follows: General contract on November 9, 1908, to C. H. Belledu, in the sum of \$81,392; the plumbing contract on November 23, to Pierce & Cox, in the sum of \$4,875; the electric contract on December 30, to the M. B. Foster Electric Company, in the sum of \$4,844, and the heating contract on January 21,



BISHOP CHEVERUS SCHOOL, POPE, MOORE AND CHAUCER STREETS, EAST BOSTON.

BRainerd & Leedy, Architects.

For plans see page 77.





1909, to J. J. Hurley & Co., in the sum of \$11,795. This building will accommodate 704 pupils and will contain sixteen class rooms, manual training room, cooking room and assembly hall. It will be named the Bishop Cheverus School. The contracts to date are as follows:

	Original Contracts.	Contracts to Date.
General contract . . . . .	\$81,392 00	\$81,432 00
Heating contract . . . . .	11,795 00	11,795 00
Plumbing contract . . . . .	4,875 00	4,866 00
Electric contract . . . . .	4,844 00	4,844 00
	<u>\$102,906 00</u>	<u>\$102,937 00</u>

This building, on the basis of a sixteen-room, upper elementary, with an assembly hall, was rated at eighteen rooms, 30,000 cubic feet per room and 22 cents per cubic foot, or \$118,800. It has been let considerably below this amount and the cost per pupil will be in the neighborhood of \$160.84. This was figured at a very favorable market, and it is not likely that these prices will be readily duplicated.

*Item 5.—Dudley district*, elementary school, lower grades. Land for this school was advertised for on January 31, 1907, but no taking was made (see page 6 report of 1907–08). As the building did not appear on the list of the School Committee for 1907 nothing further was done in the matter at that time, but on May 9, 1908, it having appeared on the list of 1908–09, it was voted to ask the Street Commissioners to take the Tetlow estate on Cedar street, Roxbury, containing 34,760 square feet. This land was taken on July 24, and \$12,500 was paid. On July 10, 1908, the Board voted to ask the Street Commissioners to take a certain parcel of land adjoining the former parcel, containing 11,151 square feet, in order to enlarge the school lot making a total of 45,911 square feet. This was done on September 18, and \$4,870 was paid, a total of \$17,370. On May 11, 1908, Messrs. Parker, Thomas & Rice were appointed architects of this building, a twelve-room, lower grade, elementary, to accommodate 528 pupils. Plans have been completed and contracts have been let as follows: General contract to Antony Varnierin, October 30, 1908, in the sum of \$54,765; the heating contract to Huey Brothers Company, in the sum of \$6,667; the plumbing contract to Bresnahan Brothers on November 16, in the sum of \$3,368, and the electric contract to the M. B. Foster Electric Company in the sum of \$2,520.

The work of blasting and excavation is going on and the building is due to be completed on September 9, 1909.

The original contracts and the contracts to date are as follows:

	Original Contracts.	Contracts to Date.
General contract . . . . .	\$54,765 00	\$54,765 00
Heating contract . . . . .	6,667 00	6,667 00
Plumbing contract . . . . .	3,368 00	3,368 00
Electric contract . . . . .	2,520 00	2,520 00
	<hr/> \$67,320 00	<hr/> \$67,320 00

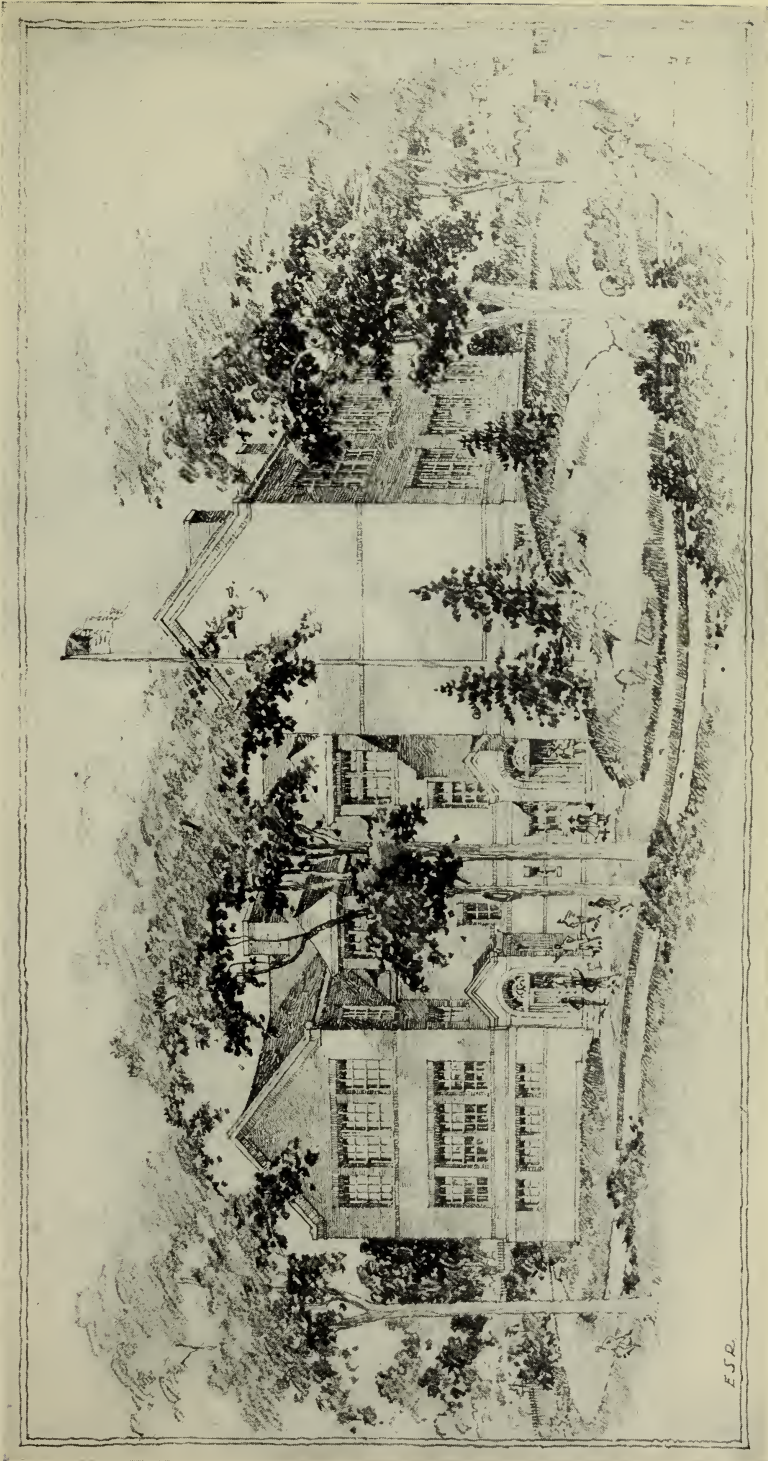
This building, as a twelve-room lower elementary, was rated at twelve, 30,000 cubic feet and 22 cents per cubic foot, making a total of \$79,200. Again, as in Item 4, the contracts are considerably below this limit, and the cost per pupil is \$140.26. This was let under the same favorable circumstances at as Item 4.

This school will be named the Nathan Hale School.

*Item 6.*—*Henry L. Pierce district*, high school (Dorchester High Annex). This has been reported for the last two years (page 5, report of 1907–08). Land was taken on June 16, 1905, and three portable buildings were placed on the lot for temporary accommodation. On the receipt of the list of 1908 from the School Committee this building was again taken up, and Messrs. Hartwell, Richardson & Driver, the architects of the Dorchester High School, who had been appointed architects on June 20, 1905, were directed to continue with the work on the plans and specifications.

When the plans were submitted to the Superintendent, on the basis asked for by the School Committee, with accommodation for 420, he reported that in his judgment this accommodation was not sufficient, and the School Committee, in concurrence with this Board, voted to increase accommodation to 700, and to increase the appropriation to \$135,000 by transferring \$10,000 from the appropriation for the Brimmer District School, Item 2. The revised plans are now nearly complete. This will be an addition to the present building, and will contain eighteen class rooms and rooms for handicraft, wood and metal working and drawing. It is hoped that the building and its equipment can be kept within the appropriation, but the amount appears hardly adequate.

*Item 7.*—*Longfellow district*, elementary school, lower grades (addition to the Longfellow School). This item, as stated in last year's report, appeared as Item 34 of the list of 42



NATHAN HALE SCHOOL, CEDAR STREET, ROXBURY.  
PARKER, THOMAS & RICE, Architects.

For plans see page 78.







DATE OF PLETORY.	NAME.	DISTRICT.	ASSESSOR.	DESCRIPTION.	LOCATION OF LOT.	AREA OF LOT.	COST OF LOT.	AREA OF BUILDING.	UBIC CONCRETE OF BUILDING.	COST OF BUILDING.	COST PER SQ. FT.	RATED NO. OF FLOORS.	COST PER FLOOR.
1870	Agnes Davis	12 Rooms P.	Dearborn	Charles A. Cummings	24 Class, 3 Stories	18,330	\$17,100 00	5,880		\$44,872 82	30 21	600	\$74 79
1882	Abby W. May	6 - P.	Dearborn	E. M. Wheelwright	24 Class, 3 Stories	11,052 2	\$2,543 20	4,312	108,812	12,900 00	30 21	600	\$74 79
1887	Adams	6 - P.	Dearborn	Lewis H. Bacon	1 Story	22,000	\$17,700 00	3,900	117,108	19,988 70	0 17	100	\$18 07
1826	Adams	13 - G.	Dearborn	Joseph H. Richards	2 Stories	21,000	0,930 00	0,027				100	650
1900	Adams and Chestnut street	2 Rooms P.	Frothingham	Schoolhouse Agent Department	Adams and Chestnut sta. Chan	20,399	30,833 78	2,624		3,318 00		100	35 19
1881	Adamestrest	2 - P.	Frothingham	Gilbert Stuart	Adams st. Dor.	44,535		1,870				100	
1893	Adams	6 - P.	Dearborn	E. M. Wheelwright	Adams st. Dor.	42,244		1,870	641,238	99,134 21	0 13	700	\$11 67
1888	Adams	6 - P.	Dearborn	E. M. Wheelwright	Adams st. Dor.	10,163		0,721	42,370 00	0 21	300	181 07	
1898	Andrews	8 Rooms P.	Quincy	E. M. Wheelwright	Andrews st. Dor.	12,737	47,308 29	4,655		63,601 24	0 23	450	145 79
1870	Andrews	12 - P.	Quincy	Emerson & Fehmer	Andrews st. Dor.	15,454	28,493 20	5,690				600	145 79
1877	Ann GRAY	8 - P.	Hyde	Geo. A. Clough	Ann st. Dor.	14,133		2,860	211,904	38,706 04	0 18	400	95 17
1872	Arthur	8 - P.	Christopher Gibson	Bryant & Rogers	Columbia st. Dor.	24,731	11,280 15	6,210		40,002 30		400	120 00
1886	Austin	4 Rooms P.	Thomas Gardner	Grider J. F. Bryant	School st. Bri.	12,161		1,480				200	
1880	Austin	4 - P.	Henry L. Pierce		Park st. E. B.	4,010		2,932 00		3,023 51		200	151 25
1880	Baldwin	4 - P.	Washington		Baldwin st. Dor.	23,438	11,079 75	2,170		15,448 00		200	151 25
1884	Dakota	6 - P.	Washington		Charles st.	6,149	12,278 00	2,270				300	44 90
1845	Barthelme-street	6 Rooms P.	Dillman	E. M. Wheelwright	Barthelme st. Dor.	7,627		2,250				300	
1887	B & T weed	6 - P.	Bunker Hill	A. Warren Gould	Cambridge st. Chan.	14,345 30		4,330	181,776	39,991 05	0 22	300	183 80
1887	Benjamin	6 - P.	Bunker Hill	A. Warren Gould	Robinson st. Dor.	20,032		0,457	237,067	60,432 34	0 18	300	183 80
1889	Benjamin Dean	8 - P.	Thomas N. Hart	Wm. H. Boardman	H. st. S. B.	11,477		5,593	329,451	42,967 28	0 18	300	183 80
1882	Benjamin Pope	8 Rooms P.	Quincy	C. J. Bateman	O. st. S. B.	20,000	80,000 00	5,870	238,336	43,507 87	0 18	400	115 77
1874	Benson	6 - P.	Dearborn	J. Foster Ober	Chestnut Hill ave. Bri.	26,043	12,424 50	5,870		74,516 81		350	212 91
1880	Benson	6 - P.	Dearborn	C. J. Bateman	Highway st. Dor.	9,605	8,446 70	1,400				200	
1880	Benson	6 - P.	Dearborn	C. J. Bateman	West Fourth st. S. B.	20,704	43,463 21	10,355	828,515	179,590 58	0 21	900	128 70
1882	Blackinton	9 Rooms P.	Blackinton	E. M. Wheelwright	Leyden st. Orient Heights, E. B.	29,160		6,894	291,344	46,047 11	0 20	450	124 50
1882	Blackinton	15 - G.	Blackinton	H. H. Atwood	Grove st. J. P.	23,653		9,393	518,224	104,579 01	0 17	750	139 44
1890	Blackinton	10 - G.	Blackinton	E. M. Wheelwright	Myrtle st.	10,777	38,120 84	5,469		109,157 91	0 18	800	139 44
1893	Blackinton	4 - P.	Roger Wolcott	E. M. Wheelwright	Morton st. Mat	24,493		5,042		26,100 48	0 18	300	139 44
1889	Brewster Annex	2 Rooms P.	Roger Wolcott	Schoolhouse Agent Department	Morton st. Mat	24		2,173		3,593 97		100	31 00
1880	Brighton High	14 Rooms G.	Brimmer	E. M. Wheelwright	Brewster Lot	11,417		112,650 00		163,887 98	0 10	700	
1883	Bunker Hill	14 - G.	Bunker Hill		Common st.	11,491	21,260 00	3,944				700	
1883	Bunker Hill	14 - G.	Bunker Hill		Baldwin st. Chan	19,650		5,580				700	
1884	Bunker Hill	14 - G.	Bunker Hill		Bunker Hill st. Chan	20,121		2,023				400	
1884	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
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1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121		1,846				100	
1881	Canterbury-street	2 - P.	Charles Sumner	Charles Sumner	Canterbury st. W. R.	20,121							

None.

The cost of buildings does not include the architect's commission.  
The cost of the buildings erected between 1870 and 1891 taken from City Architect's Report, 1894.

In nearly all of these buildings there were additional charges for carpentry and painting, covering items now included in the contract for building, such as bookcases, fittings of cookery and manual training rooms, telephones, electric fixtures, the painting and tinting of walls, etc.

In counting rooms only class-rooms are taken, and pupils are averaged at 50 to a room.

<sup>1</sup> The cost of this building includes cost of acquiring adjoining property.

\* Grading, 1827-1828, \$4,263.84.

\* Addition built in 1899, Public Buildings Department.

<sup>3</sup> Gradilog, 1897-1898-1899, \$6,772.09.

<sup>2</sup> Described in 1878.

<sup>†</sup> Remodelled in 1859, Charles A. Cummings, Architect.

<sup>2</sup> Cowley school.<sup>12</sup> Cost of work benches and other equipment not included.

Cost of lot and building included in cost of English

<sup>14</sup> Includes 3 kindergarten rooms.

4. Addition built 1902. Wales & Holt, Architects.

<sup>1</sup> Addition built in 1893, E. M. Wheelwright. Archibald  
 B. B. ... ..<sup>15</sup> Bath room accommodates 14 pupils

<sup>17</sup> This cost includes \$7,435.43 expended as an extra on increased depth of foundation necessitated by the condition of the site.

<sup>14</sup> Piles driven to support foundation.<sup>b</sup> Includes Cushman and Barock. A

\* Four-room addition built in 1904. C. B. Perkins, Architect.  
 † Addition built in 1902. Andrew Rogers & Bonstead, Architect.

<sup>a</sup> Addition built in 1898, Andrews, Jaques & Rantoul, Architects  
<sup>b</sup> Used as storehouse

\* Includes smoking room and manual training room in basement.

11 Uncompleted.

\* Three rooms added in 1904.

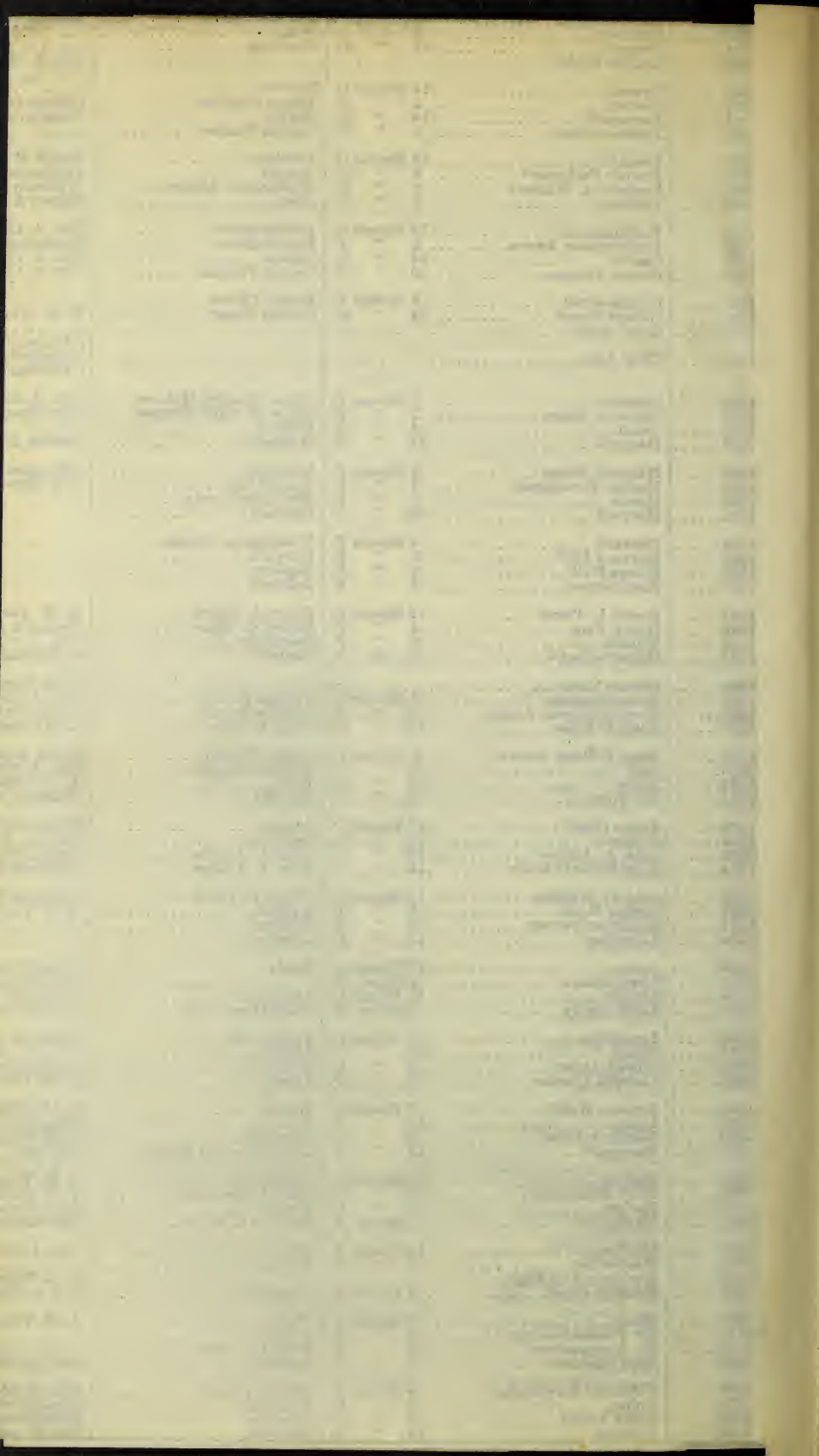
\* First-class construction except roof.  
 † Mill construction.

\* Occupied by High School of Commerce.

\* Occupied by Girls' High School of Practical Arts.

<sup>a</sup> This cost includes cost of food.







items furnished by the School Committee. (See page 9, first annual report, and page 13, report for 1907-08.) In consideration of other more pressing needs this was postponed until this year, when the School Committee's list shows it as the last item. Mr. C. Howard Walker was appointed architect; plans are being prepared and are nearly complete. Land had been already purchased, on November 14, 1902, containing 8,923 square feet, for which \$7,825 had been paid. The appropriation for building and furniture is \$50,000. On the basis of an eight-room building the allowance for building alone would be \$52,800, but as the building is an addition and has no basement nor independent heating apparatus it is hoped that it can be kept within the appropriation.

This completes the items on the list of 1908-09.

## (2.) THE REVISION OF STANDARDS OF COST TO AGREE WITH REDUCED SIZE OF ROOMS.

The Board has now had a year's experimenting with the planning of schools for the new standard class room. It was hoped that in planning buildings with the smaller class rooms, seating 44\* instead of 56,\* economies in lighter steel and lower stud, added to those possible under the new building laws, lighter walls and wood frame for the roof, would offset the increased cost of a larger number of rooms with their fixed equipment for each. The first test, the new Edward Everett, did not justify this, for although it was planned compactly and designed as simply as the buildings previously erected the limit of \$105,600 was materially overrun by the lowest bid received. The Board cut out everything ornamental, everything in any way superfluous, and succeeded in getting the building down to the limit. With this example before it, the Board was more careful still with the two buildings that followed, the twelve-room, lower grade elementary, and the sixteen-room, upper grade elementary (the Dudley and the Blackinton, see pages 10 and 11). The figures on these buildings show that the limit was not impossible of attainment. Both buildings came well within the limit. The twelve-room elementary limit was \$79,200. (Slightly higher, it will be noted, than the old ten-room limit, \$77,000, although the number of pupils is practically the same in each, 10 by 50, and 12 by 40.) It was let for \$67,320. The sixteen-room, upper grade elementary, allowing two rooms for hall, was an eighteen-room limit, or \$118,800,

\*In all cases where the report gives cost per pupil, the small rooms which accommodate 44 desks are rated at 40—just as in previous list the old standard rooms, accommodating 56 desks, were rated at 50.

and this is let for \$103,906. In both cases, therefore, the Board has succeeded in keeping to the previously established limit of cost per pupil. This was fixed (see report for 1906-07) at \$132 to \$154 for lower elementary and at \$174 to \$192 for upper elementary. Here the cost per pupil in the small lower elementary is \$140, nearly down to the limit for large buildings, and the cost per pupil in the upper elementary is \$162, which is below the low limit for large buildings. It is more than doubtful if this record can be continued, as all figures were low when these buildings were let. The Board feels justified, however, in setting the limit at 30,000 cubic feet per class room and 20 cents per cubic foot, instead of 22 as previously allowed for small buildings, and expecting further economy in large buildings.

On allowance of 30,000 cubic feet per class room:

	Cents.	Per cent.	Cost per Pupil at 40 to room.
Cost of building . . . .	16	80	
“ “ heating . . . .	2	12	
“ “ plumbing . . . .	1	5	
“ “ electric . . . .	1	3	
	<u>20</u>	<u>100</u>	<u>\$150</u>

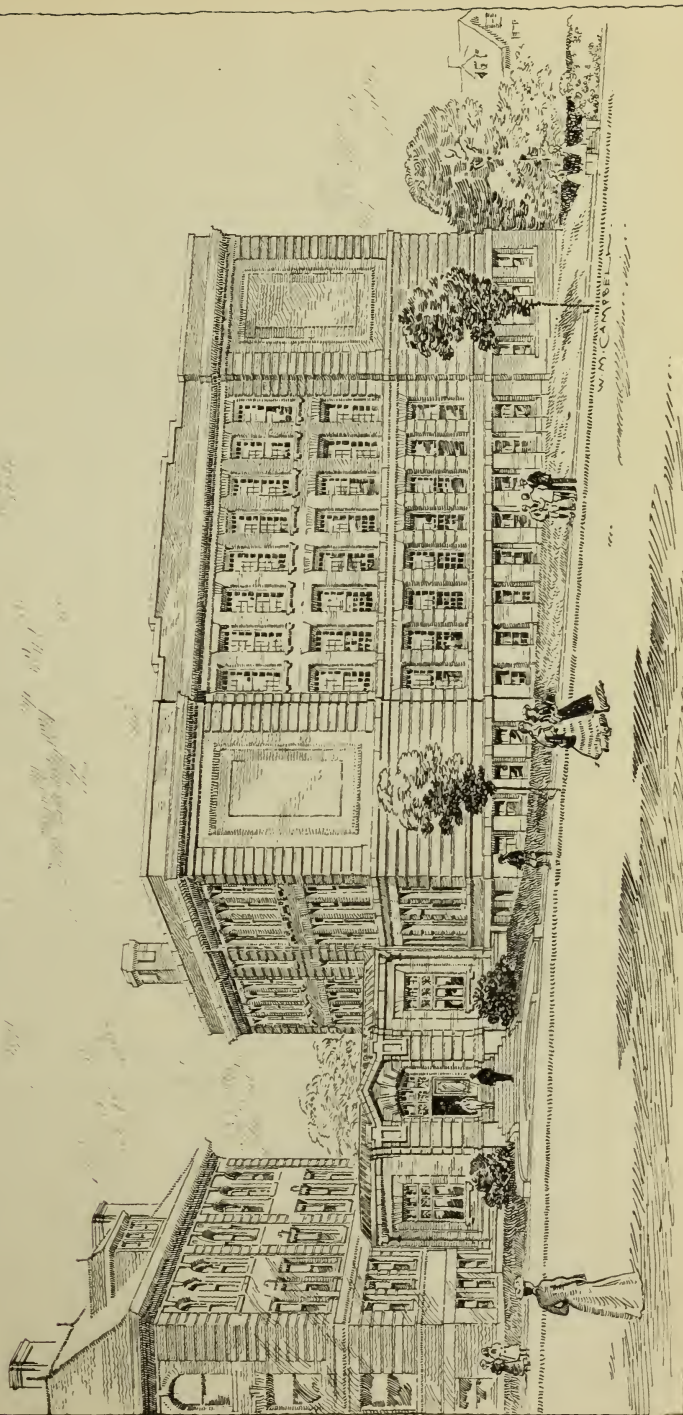
Large buildings for lower elementary should come down to \$140 per pupil.

For assembly hall allow from two to four class rooms, according to size of school. This increases the cost without increasing the accommodation, so that the upper elementary cost per pupil might run from \$170 for small buildings to \$160 for large buildings.

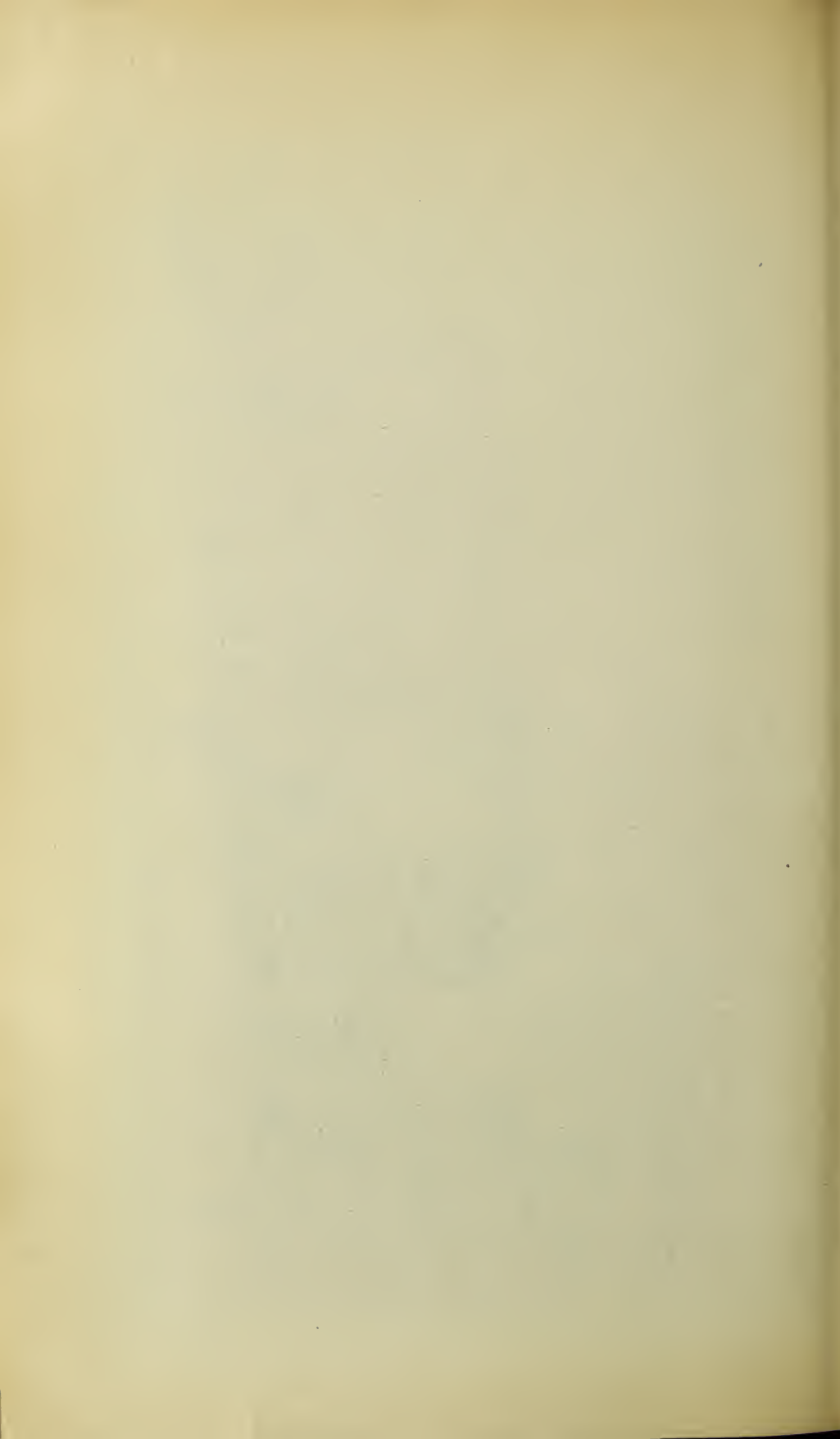
One change in planning has probably proved economical. Galvanized iron, both in basement, the horizontal ducts, and in walls, the vertical ducts, has been largely eliminated. In place of this masonry ducts, below the basement floor and in the walls, have been substituted. This has not added materially to the cost of the masonry and has made a substantial saving in metal work. It seems, moreover, a more permanent and therefore better form of construction. This economy is one of the direct and immediate results of having our own heating engineer, who has concentrated his attention on economic planning.

In the Brimmer-Winthrop and in the Phillips district, the Board will have an opportunity of testing figures on a large upper grade and a fairly large lower grade school.

CITY OF BOSTON SCHOOLHOUSE DEPARTMENT  
 DORCHESTER HIGH SCHOOL ANNEX  
 LITHGOW STREET DORCHESTER  
 HARTWELL RICHARDSON & DRIVER ARCHITECTS BOSTON



DORCHESTER HIGH SCHOOL ANNEX, LITHGOW STREET.  
 HARTWELL, RICHARDSON & DRIVER, Architects.





The former (as described page 75) has the Chicago type wardrobe referred to in the report of last year and the year before. This was planned for, both because the dimensions of the lot required the limit of compactness and because the Board was anxious to make the reduced appropriation (see page 9) go as far as possible towards completing this item. With a price for the land lower than we had anticipated and with the tailings of other items it is just possible that there may be enough to complete this school without any further appropriation.

The latter (as described page 73) is compact, has two plain walls on party lines and a comparatively small yard area to finish, and should therefore be an economical building.

The Board has been criticised by the Finance Commission for undue expenditure on school buildings, and the Commission has recommended that the present type of new school buildings be so modified that there may be a saving in cost, the reduction to be not less than 10 per cent. In the body of their report, the Finance Commission make it clear that their idea of modifying the type is to return to wooden construction of floor and partitions. In the judgment of this Board, true economy lies in good planning, in simple material, in avoidance of ornament and not in poor construction.

### (3.) FUTURE ACCOMMODATION.

The changes made in the elementary schools two years ago, eliminating the ninth grade, showed itself to some extent last year in the increased number of high school pupils. In 1907-08 the increase in school population was confined to the high schools; there was practically no change in the numbers in the elementary schools. This year the full effect of the change is felt, and October showed an increase of 1,800 in the high schools as compared to a normal increase of 400-500. There was also an increase in the elementary schools of about 1,000. The whole of this, however, can be accounted for by the Chelsea fire. Returns from the masters show nearly this number of children from Chelsea.

Of the pressing needs for accommodation that were mentioned last year, the West End seems in a fair way to be met. The eighteen-room building on Joy street will be started by March, 1909. This should be followed shortly by the other West End school. As much of the comment the Finance Commission has made on the work of the Board has been rather unfavorable, it is pleasant to note one bright spot. They have



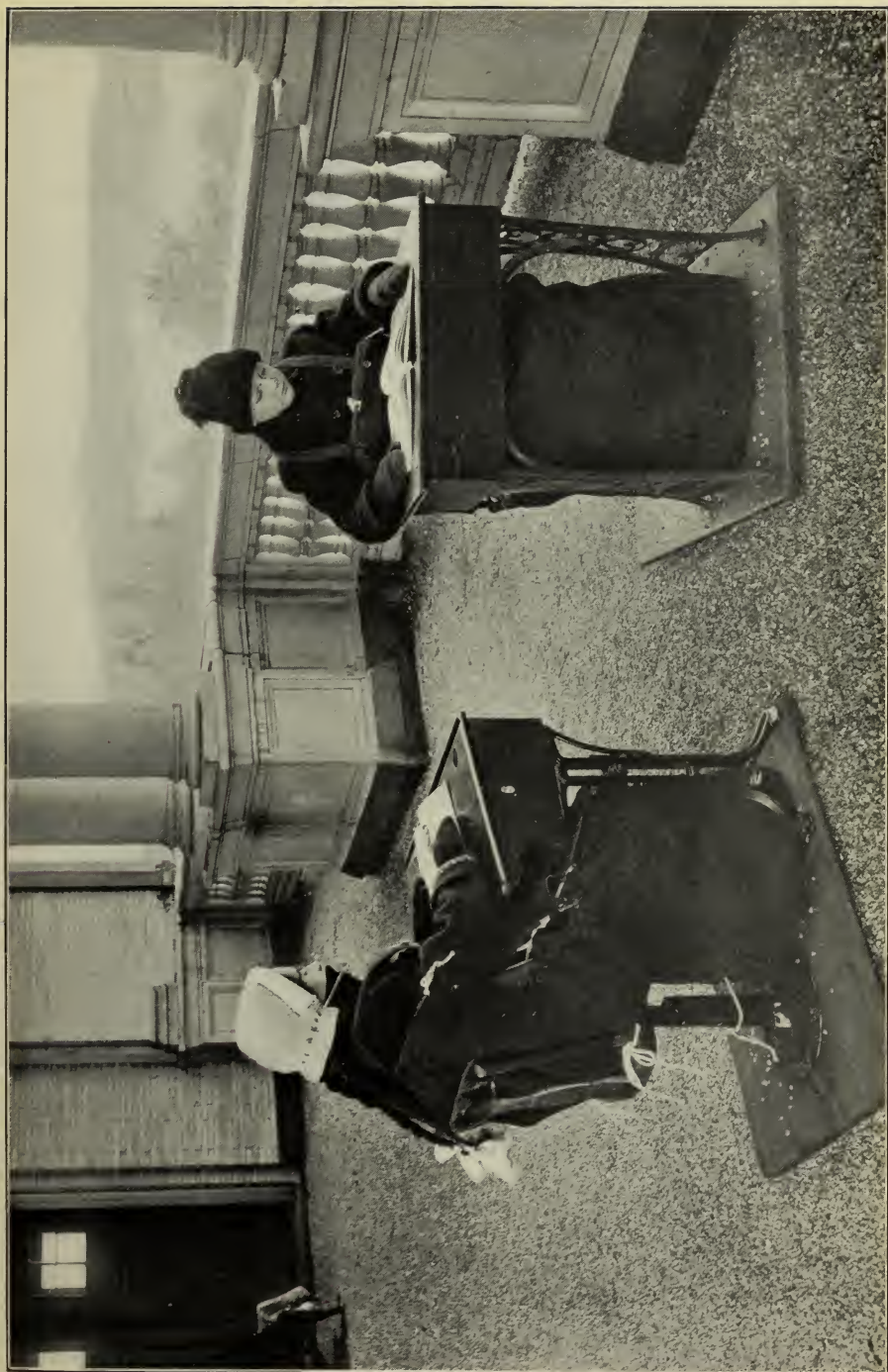
not only endorsed the embankment scheme, but, what is of far more importance, have urged (pages 374, 375) the establishment of country schools for the benefit of the children in the crowded tenement districts. Ever since this was first suggested by Mr. J. R. Coolidge, Jr., the Board has been unanimous in its support, and the masters in the North and West Ends and in the South Bay believe in it. If this ever comes, it will meet in the best possible way the overcrowding in old, poor buildings in these districts.

In the South End the same crowded condition exists that has been reported so often and the neighborhood of the Hyde and Sherwin will probably be the next district to be provided for. With the completion of the work in hand and the South End and South Bay cared for, the most pressing needs are those of the high schools. Practically all the existing buildings are full, only in South Boston and Charlestown is there any room at all, and the new schools (High School of Commerce and Girls' High School of Practical Arts) are growing rapidly, without appearing to draw from or relieve either local or central high schools. The completion of the Dorchester High Annex will care for that district for a time, an addition to the Roxbury High and to the Girls' High — for both of which land is bought — would help those schools. The fitting up of attic space in the West Roxbury High would help there; but the real need is the new building for the High School of Commerce and the moving of the Girls' High School of Practical Arts from its isolated position on Meeting House Hill to the Normal Group. This is an undertaking that will require much time and it should be started at once.

On January 20, 1909, the School Committee sent in to the Board the list for the coming year as follows:

	Pupils.
1. Adams district, elementary school, upper grades .	616
2. Sherwin district, elementary school, upper grades .	704
3. Lewis district, elementary school, lower grades .	440
4. Dwight district, High School (Girls' High School),	320

At about the same time they presented to the Legislature a bill asking for a special appropriation for a new High School of Commerce, and the Board presented a bill for permission to locate a school on the Embankment. With the items on this list cared for, and the passage of the two bills, substantial progress will have been made towards meeting the pressing needs in both elementary and secondary education.



OPEN AIR SCHOOL, REFECTORY BUILDING, FRANKLIN PARK, BOSTON.





## (4.) FIRE PROTECTION.

As reported last year (report 1907-08, page 19), the Board, at the request of the Mayor, submitted a list of buildings that required further fire protection to safeguard the children. These were under three heads: first, to prevent fires occurring, the protection of the heating plant, and its isolation from the rest of the building; second, to facilitate the rapid and orderly dismissal of the children in case of danger, a more perfect system of signals for fire drill; and third, emergency fire exits for buildings dependent on wooden staircases, especially for such buildings as are of three stories or more.

Under all these headings the Board had been systematically at work, but had been hampered by lack of means. With public interest aroused to the urgency of this work, it seemed desirable to take immediate steps to provide funds and have the work executed. The Board's report as to the needs was fairly accurate, but the estimate of cost was necessarily largely conjecture. The amount desired was \$200,000. The Board applied to the Legislature and under chapter 524 of the Acts of 1908, already quoted, under Item 6, page 7, was authorized to use such portion of previous appropriations for Land and Buildings as the Board estimated would remain unexpended after the required accommodation has been provided. The Board certified that in their opinion \$115,000 would remain unexpended. This was not equivalent to saying that the Board had overestimated the various items, but that with the consent of the School Committee one item was materially reduced in the accommodation furnished. This was not in strict accordance with the letter of the law, but both the School Committee and the Board felt that they were justified in the action and that if additional appropriation was needed to provide the full accommodation required by the vote of the School Committee, such additional appropriation would be provided.

As reported last year, the Board, feeling sure of public support in so vital a measure as one affecting the safety of the children, proceeded at once on this work and has made substantial progress under all three heads. In the list prepared for your Honor there were 118 schools in which the heating apparatus was to be protected; 170 schools to be equipped with fire drill signals, and 36 schools requiring additional means of exit. Under the first heading work has been done in about 15 schools; under the second in 76 schools; under

the third in 21 schools. The Board has contracted for \$84,510.32 of the \$115,000 set aside and is proceeding with the rest of the work. Under the first heading the work has consisted mainly of removing, protecting, or replacing inflammable material in or near the heating apparatus, reducing the number of openings to the space occupied by heating apparatus and fitting the remainder with fireproof doors. Under the second heading the work has been the installation of the fire drill signal system, reported on last year. In this the only change is that in some cases the box has been provided with a key, so that no unauthorized person can ring in an alarm for fire drill.

Under the third head, perhaps the least important of the three (as with protected heating apparatus a fire is unlikely to occur, and with perfect system of fire drill the children would be all out before danger forced them to use the fire escapes), thirteen schools have been equipped with fire escapes of a staircase type, with tread and rise about 9 inches by 8 inches, 2 foot 6 inch high rail, and guarded enclosure at the bottom with door at grade opening out.

Beside this work and before the bill had been suggested, asking for a special appropriation for the purpose, the Board had already made a careful inspection of all old buildings and had corrected all exits that were obviously unsafe, doors that opened in, or that were equipped with locks requiring key to open, or that were obstructed by winter porches. Nothing but constant and intelligent supervision will prevent such conditions as the Board then remedied. In many cases some minor change, made without due thought, was the cause of a dangerous condition. For example, an exit door, fitted with a spring lock, gives trouble because a pupil goes out, opens the catch up, leaving the school open, and a requisition for a "new lock" comes in, is granted, and the Board later finds the door equipped with a dead lock and no longer of any use as an emergency exit. Or, the Board finds that a storm door, built by some previous authority, fifteen or twenty years ago, opens in, or has a dead lock, or is so planned as seriously to impede exit. To avoid these mistakes requires constant care, to discover them requires still more.

All the above applies to the old buildings. It may be well to repeat here what standards the Board advises in new buildings. All doors from the building and all class room doors open out, wardrobe doors are double swung. The children's entrances are always to the basement and are independent of but convenient to the staircases up. The main entrance or entrances are also planned to be free of the



staircases. The staircases lead to the basement, so that the basement exits, as well as the main front door, or doors, are available in fire drill. In larger schools, or in schools with but one main door, emergency exits are also provided on the staircases which go out from a landing between the first floor and basement, at grade. No doors enclose or shut off the stairs. The buildings are all fireproof and the clearest approach to stairs is considered the best. The Board is now considering providing the class rooms with metal doors which if adopted would make the rooms a perfectly safe place to stay in if the corridors were filled with smoke. The heating apparatus is always isolated in the basement and has the fewest possible openings into the rest of the building. Self-closing, fireproof doors close these openings. There may be even in a strictly fireproof building some slight additional safety in locating the boilers outside the building. This, however, will add to the cost and, except where boilers under pressure are used for power, it is perhaps more theoretical than actual safety which is gained. The boilers were placed outside in the Blackinton School, and as far as cost is concerned, the Board can only say that this is one of the most economical of all the schools constructed in the last seven years, but certainly there would have been still more economy if the boilers had been located within.

A fire occurred in January, 1909, in one of the old, small primary schools that was evidently incendiary. It started when school was in session and began in oil-soaked clothing, which, in this old school, hung in the corridor. So abominable and hideous a crime as this, if undetected and unpunished, is a most awful danger to the community. The Board could take steps to remove inflammable material from corridors and stairs, but, unfortunately, where corridors and stairs are of wood, nothing short of rebuilding will accomplish this. Even the education of the community cannot prevent crimes like incendiarism, which spring generally from an unbalanced mind. Strict discipline in the schools and closer supervision over entrances should reduce such a danger to the minimum.

The work of carrying out the fire protection of old buildings has been done by the Board through its architectural and engineering divisions, and more could have been done, had it not been that all divisions were overcrowded with work and it was neither practicable nor wise to increase suddenly by a large influx of new draughtsmen the force in these divisions. The work, however, is going steadily forward towards completion.

## III.

## REPAIRS.

For the first time since 1906 the Board comes to the close of the fiscal year with no overdraft, and this is largely due to increased care in expenditures and more thorough supervision.

In the summer of 1907 it was discovered that recent building operations in and about the section of the city known as the South Bay had resulted in a general lowering of the water level and that buildings that were built forty or fifty years ago on piles, cut off in the neighborhood of grade 8 or 10, showed serious settlement. An examination showed that both the Quincy and Tyler Street Schools were in an unsafe condition. Both of these buildings had to be completely underpinned. Part of the work on the Quincy School was done in 1907, a charge against 1908 of over \$30,000. In the winter of 1907 the Board again suffered a serious loss, owing to a fire in the Walnut Street School. As in the case of the Lewis School fire, the loss occurred so near the end of the fiscal year that no foresight could prevent this being a charge against the account of 1908. These added burdens showed in the February, 1908, schedule of bills which was over \$48,000, and in large additional amounts in subsequent drafts for the next three months.

It was this serious condition of affairs which faced the Board on February 1, 1908, and made it essential that the most rigid economies should be exercised in every possible direction. During the year 1908-09 the Board has been fortunate in having no unusual expenses with the exception of completing the work on the Quincy School and the underpinning of the Tyler Street School, which cost between \$12,000 and \$14,000. Once more the Board received the relief which it had in 1902 in connection with the fire protection of buildings, which has enabled it to pay for such work out of the appropriation for Land and Buildings for Schools. The overdraft in February and subsequent months and the cost of the Quincy and Tyler Street foundations were known charges before the summer work was undertaken and the Board was able to plan its work accordingly.

Two items of repair have always been very large, furniture, and painting and tinting. In 1907-08 \$44,000 was spent on furniture, providing new, or providing adjustable irons, or repairing the old. Thirty-eight thousand dollars was spent in 1907-08 on exterior and interior painting and glazing. As a result of these expenditures both buildings and furniture were in fairly good condition, and the

Board decided that on these two items alone sufficient could be saved by neither redressing furniture nor tinting, for appearance only, to offset the deficiency with which the year started; \$8,000 was saved on furniture and \$20,000 on painting. Some years ago the Board established the policy of replacing worn out artificial slate boards with natural slate and each year since then has expended \$5,000 to \$10,000 on such work. In 1907 the Board spent \$4,800, and here also in 1908 a halt was called and another \$2,000 saved. These three savings offset the February overdraft and enabled the Board by the exercise of rigid economy to reach the end of the fiscal year with no overdraft against 1909. The February, 1909, schedule was \$9,015.30, which is the smallest amount since the Board has been established.

One valuable detail of routine has been tried with success this year, a monthly meeting of the heads of divisions and of the inspectors with the Board. At these meetings each inspector makes a report of all work done in his district during the month, and another report of what is required in the way of repair, major or minor, and of equipment. These reports are on printed forms. The Board passes on each item of required repair and if approved marks it immediate or for vacation work and it is so entered in a book, kept in duplicate, and always accessible to the inspectors and the Board. The result of these meetings has been of advantage in many ways. First, there has been no conflict of work between different divisions. If tinting, and wiring for telephones is to be done in the same building, they are done in proper sequence. Second, a uniformity as to what is desirable and what is necessary and what unnecessary has been established. Third, the Board has the advantage of the opinion of all its inspectors and its experts on any question that arises immediately available. Fourth, where individual inspectors differ as to the line between desirability and necessity, a committee of inspectors is appointed to select the necessary items.

The more complete organization of the departments of domestic and civil engineering has also helped in the economical planning, estimating and execution of all work that comes in their respective lines, and much petty electrical repair is done by one of the Board's regular force.

On the whole, the Board feels satisfied that substantial progress has been made in handling the repair fund so that the city shall get the best return for the money expended. A more detailed and comprehensive report of this important branch of the work is given in Report on Repairs in Detail, page 30.



## IV.

## POLICY OF THE BOARD.

The policy of the Board as to the employment of architects is being reconsidered and it is possible that in the near future the Board may undertake the execution of the new work themselves, just as now they take care of the domestic engineering. Since last year the American Institute of Architects has issued a new schedule of charges and six per cent, instead of five, is now the rate on all except domestic work. In view of the fact that this Board furnishes such a large amount of information to the architects employed by it, not only in general information but also in details of construction and equipment, and in view of the fact that the Board proposes to do some of this work itself and only a portion in any case will be given out, it does not seem desirable at this time to print any change in the "Architects' Services," which are given as usual in Appendix V.

The cost and the equipment of the elementary schools, notwithstanding the change in the size of class-rooms, has remained practically the same. In the high schools the Board is confronted with the new problems connected with educational work. The whole subject of technical education is so much in its infancy in this country that no one city from its own experience can lay down any general policy as to the desirable or necessary equipment for such work.

The Board believes that a somewhat needless amount of equipment is called for in the science laboratories and the policy of the Board will be to go forward slowly and tentatively in the equipment of rooms for technical work.

The engineering departments for heating and ventilating work are now firmly established and the force has been somewhat increased since last year and will require still further increase as the Board gradually takes complete control of the domestic engineering of all new buildings. The last of the buildings to be handled by outside engineers, the Mechanic Arts High School, is now complete.

This year the civil engineer has had added responsibility on his shoulders in exercising a general supervision over the department of architecture which has been temporarily without a head.

The Board is proposing in the near future to try to arrange for conferences between its engineers and those employed in similar work in other cities and believes that this will be of great mutual advantage. It is hoped that the Board may be able to reach definite conclusions in regard to the partial or

entire dependence upon fans for the heating and ventilation of the buildings and that series of tests may establish facts as to the actual operation of plants and enable the Board to compare what is planned for with the result.

Experiments with the various forms of artificial light that have been recently installed should enable the Board constantly to improve the facilities for evening work. New lamps are being put on the market constantly and the whole system of illumination is being studied in a scientific and thorough way which should give good results.

## V.

### GENERAL DEDUCTIONS.

These were covered in last year's report and no substantial change has been made. They are repeated briefly as a matter of record. All buildings are required to be fireproof up to and including the ceiling of the upper story. The cost is limited by allowing 30,000 cubic feet as a maximum per classroom and it is hoped that the price can be kept to 20 instead of 22 cents per cubic foot. For unusual expense in foundations an addition of 2 cents per cubic foot is allowed. In upper elementary schools an allowance of two class-rooms would be made for the assembly hall, or of four, if the building is of unusual size, say over sixteen rooms.

The Board has no information to add to what was contained in last year's report on the subject of high schools. It would seem as if \$400 per pupil ought to be sufficient allowance.

For the exterior, common red brick and stone. For the grounds outside the buildings, from 30 to 50 square feet per pupil. Elementary buildings having about them paved spaces, experimental gardens, planted spaces and simple enclosures, preferably hedges. The square foot test for the floor plans remains and is found effective. The class-room area on one floor multiplied by two should be the outside limit of the area of the floor. Buildings should be planned to give sunlight in every room at some time of the day. While the Board believes in unilateral lighting, it is better to have light from two sides than to have no sunlight. A room that has sunlight during all the school hours is not desirable.

The assembly hall should be placed as near the ground as possible. This is exemplified in the Bishop Cheverus and the Abraham Lincoln Schools.

The grade of the first floor should be sufficiently above the grade outside to make it possible to have doors to the basement with steps down inside. The basement floor, especially



in such rooms as are used for the work of cooking or manual training, should be kept as near the grade outside as is possible, to give reasonably high story, about 10 feet; with the boiler room having greater height and the floor at lower grade, the main ducts can be of masonry below the general basement floor.

The adjustable furniture, both desk and seat, is still in use, its success depending merely on the amount of attention that is given by the authorities to the adjustment.

## VI.

### FINANCIAL STATEMENT.

During the years that the Board has been in existence there have been each year a certain number of items completed, and in almost every case the Board has saved small amounts out of the appropriation. Although it is impossible to make a final accounting at this time, even of the first loans, \$7,500,000, it seems desirable, in view of the fact that there are now a considerable number of items on which balances are available, to make a brief summary to show approximately what funds are now available for work in addition to the actual items named in the appropriations for 1907-08 and 1908-09.

On the original list of forty-two items every account has been closed and the balances turned back to the general fund, with the exception of the following:

Mechanic Arts High School.

Normal and Latin School Group (building and furnishing).

Washington Allston district (Thomas Gardner School).

Dearborn district (new Dearborn School).

Of the loans made previous to 1907 the balance remaining in the general fund February 1, 1909, was \$10,453.77. On the Mechanic Arts High School the balance unexpended is approximately \$30,000. There remains on the Normal and Latin School Group \$3,157.84, land, building and furniture. On the Thomas Gardner School the balance unexpended is \$5,091.60. On the Dearborn School the balance unexpended is \$2,925.21.

Taking these in order, the balance on the Mechanic Arts High appropriation will, in the judgment of the Board, be insufficient to complete the equipment of this building. Probably \$15,000 more will be required.

On the Normal and Latin School Group the charge against the balance, \$3,157.84, is the payment for a strip of land,

the award of which has not been made, but it covers an area of 2,886 square feet, and at the price paid for the balance of the land will approximate \$4,400. There are also certain small items of furniture still unsettled. There will, therefore, be a deficit here of nearly \$1,500.

The Thomas Gardner. The unsettled claims of the contractor, if they are awarded in full by the court, will leave a balance of about \$1,500.

On the Dearborn, against the balance of \$2,925.21 there is no claim, except for a small strip of land containing about 40 square feet, which has not yet been settled. Nearly all this balance, certainly \$2,500, will be available.

The summary, therefore, of the appropriations previous to 1907 would show available in round figures not appropriated \$14,500, and against this a probable deficit of \$16,500 on the equipment of the Mechanic Arts High and the Normal land. This brings the Board to the appropriation of 1907 with a deficit of \$2,000.

Balance of General Fund . . . . .	\$10,453 77
“ Thomas Gardner School . . . . .	1,500 00
“ Dearborn School . . . . .	2,500 00
	<hr/>
	\$14,453 77
	<hr/>

The list for 1907-08 was as follows:

	Pupils.
<i>Item 1.</i> —Agassiz district, elementary school, upper grades . . . . .	264
<i>Item 2.</i> —Wells district, elementary school, lower grades . . . . .	300
<i>Item 3.</i> —Bennett district, elementary school, lower grades . . . . .	100
<i>Item 4.</i> —Adams district, elementary school, lower grades . . . . .	200
<i>Item 5.</i> —Prince district, high school (Mechanic Arts High School) . . . . .	800
<i>Item 6.</i> —Phillips district, elementary school, upper grades . . . . .	880

*Item 1.*—*The Agassiz district.* The appropriation was \$62,000, to which the Board added for the purchase of land \$4,500, out of the previous tailings of the old appropriation available.

Against this amount there has been expended for the building and furniture \$57,556.10, leaving a balance of \$8,943.90. The land has not yet been paid for, nor has any work been done in grading it and making it available for school purposes.



The cost of the land and the grading is estimated at about \$5,000. This will leave an approximate balance of \$4,000 on this item.

*Item 2.—The Wells district*, addition to the Winchell School. Fifty thousand dollars was appropriated for this building, but, it proving insufficient, \$2,000 was added from the tailings, a total of \$52,000, and this amount was practically expended.

*Item 3.—Bennett district*, elementary school, an addition to the Hobart Street School. The appropriation was \$15,000. To this was added \$8,000, previously appropriated for the purchase of land, taken out of the old appropriation, a total, therefore, of \$23,000. The land, building and furniture, including the cost of grading, amounted to \$18,438.31, leaving an approximate balance of \$4,500.

*Item 4.—The Adams district*. The appropriation was \$15,000. To this was added \$3,000 from tailings, and under this item two operations were undertaken. First, building and furnishing four portable school buildings in the Plummer yard. Second, finishing and furnishing three additional rooms in the attic of the Plummer School. These two items cost \$17,537.72, leaving an approximate balance of \$450.

*Item 5* is the *Mechanic Arts High School*, on which, as already reported, there will be a deficit if all the contemplated equipment is installed.

*Item 6.—The Phillips district*, elementary school, appropriation \$358,000. This item has been reduced by transferring \$115,000 to Fire Protection. As against the balance, \$243,000, the Board expects to spend for land about \$100,000, and for building and furniture about \$135,000, leaving a balance of about \$8,000.

This completes the statement of the appropriation for the year 1907, and shows a probable balance as follows:

<i>Item 1.—Agassiz district</i> . . . . .	\$4,000 00
<i>Item 2.—Wells district</i> . . . . .	200 00
<i>Item 3.—Bennett district</i> . . . . .	4,500 00
<i>Item 4.—Adams district</i> . . . . .	450 00
<i>Item 6.—Phillips district</i> . . . . .	8,000 00
	<hr/>
	<u>\$17,150 00</u>

The list for 1908-09 was as follows:

	Pupils.
<i>Item 1.—Edward Everett district, elementary school, upper grades</i> . . . . .	616
<i>Item 2.—Brimmer district, elementary school, upper grades</i> . . . . .	1,760

<i>Item 3.</i> — Eliot district, administrative office.	
<i>Item 4.</i> — Blackinton district, elementary school, upper grades . . . . .	704
<i>Item 5.</i> — Dudley district, elementary school, lower grades . . . . .	528
<i>Item 6.</i> — Henry L. Pierce district, high school (Dorchester High) . . . . .	420
<i>Item 7.</i> — Longfellow district, elementary school, lower grades . . . . .	352

*Item 1.*— *The Edward Everett district.* The appropriation was \$125,000. To this was added \$16,000 tailings for purchase of land, making a total of \$141,000 available. The building is now well along towards completion and it can safely be estimated that the building, incidentals and furniture will be finished for \$125,000. In addition to this there are 4,362 square feet of land which are yet to be paid for, presumably at the same price per square foot as the original purchase, \$1,750, which will leave a balance of about \$5,000.

*Item 2.*— *The Brimmer district.* The appropriation was \$450,000. On this item the work has not proceeded even to the final working drawings, and it seems unlikely, even with the lower prices that the Board hopes to get on the land, that there will be any balance on this appropriation, especially in view of the fact that \$10,000 was transferred as previously noted to the Dorchester High.

*Item 3.*— *The Eliot School,* administrative office. The appropriation was \$5,000, and the work cost \$4,486.01, a balance of about \$500.

*Item 4.*— *The Blackinton district,* elementary school, upper grades. The appropriation for the land was made out of the tailings of the original loans, \$34,000. The appropriation for this item in the 1908 list was \$140,000, a total of \$174,000 available. The land has been paid for. The building is under contract and is well forward towards completion. It is estimated that the final figures will not exceed, for land, building and furniture, \$154,000, leaving a balance of approximately \$20,000.

*Item 5.*— *Dudley district,* elementary school, lower grades. The appropriation for land and building was \$105,000. The land has been paid for. The building is all under contract and well forward and it is probable that the total cost of land, building and furniture will not exceed \$95,000, leaving a balance of about \$10,000.

*Item 6.*— *The Dorchester High School addition.* The appropriation, \$125,000, was increased to \$135,000 by transferring \$10,000 from Item 2. The land had been taken in 1905 and

## REPORT ON REPAIRS IN DETAIL.

Because of resignations and changes made in the personnel of the Commission since the inauguration of your Honor, and also because of the rigid investigation made of the disposition of the repair funds under previous administrations, the Board feels that this phase of its work should be reported in considerable detail.

It is pleasant to report that, with a repair fund for the year 1908-09 of \$273,500, after setting aside the amounts for administration expenses, and with a great number of back bills to pay amounting to at least \$120,000, more important major items have been completed in masonry, electric equipment, furnishing adjustable irons, and heating than in any recent year, while all the large sanitation work, which up to 1907 was borne by the appropriation for Land and Buildings, was paid for out of the repair fund. In this connection it may be said that in 1907-08, the first year that this work was charged to the repair fund, the only sanitation work of any size undertaken was the work at the Phillips Brooks School, which cost but \$646.

## THE SITUATION IN MARCH, 1908.

Since the burden of responsibility for repairs rested on the Commission as organized subsequent to March 17, 1908, this report will deal more intimately with the affairs of the department from that date. At that time a cursory examination of the books, coupled with reports of the clerk who had such matters in charge, all confirmed the impression that almost one-half of the \$273,000 had been used up by obligations either carried over from the last fiscal year or incurred by order between the first of the year and the middle of March. This left for the remaining ten and one-half months for maintenance, as well as major items, *only a little more than one-half of the repair fund*. The work was done, and on February 1, 1909, the outstanding bills amounted approximately to only \$4,915.14.

This was the abnormal condition in which the Commission found the repair account when the Commission was reorganized in March. Bills amounting to thousands and thousands of dollars were presented to the Commissioner then having the repairs in charge for approval, with no chance for appeal. A private business finding itself in such a condition would be in no position to secure any credit or any accommodation and might be forced into insolvency.

In other words, on January 1, 1908, the entire repair appropriation of 1907-08, amounting to \$330,300 was contracted for, making it necessary to draw on the appropriation for 1908-09 an amount that in March, 1908, approximated \$120,000 — a total liability of \$450,300.







NEW TYPE OF PORTABLE BUILDING IN THE YARD OF CHOATE BURNHAM SCHOOL.

The office force reported that over fifty per cent. of this \$412,982.75 spent was given out without any competition. It can readily be imagined that when this system of giving work to favored contractors was immediately reversed, those who profited by the previous method inspired various forces to criticise the new method of conducting the work on a business basis.

In the efforts to correct what seemed to be abuses in the conduct of the repair account, the Commission has had the positive support of the members of the Finance Commission, and feels a sense of deep obligation to the members of the Commission.

Under the circumstances, fortified morally by the Finance Commission, and really compelled legally by existing laws to live within the appropriation, it was necessary to outline a policy which would cover only the most necessary work. This meant doing work which would protect existing property.

#### MONEY FOR REPAIR WORK.

A little over \$40,000 was reported to be available for so-called "summer repair work," even though there were insistent demands on file from the masters, and reports from the inspectors, involving a sum almost reaching \$300,000. From last year came the burden of responsibility for completing the building up of the foundations of the Quincy School as well as of the Tyler Street School. These items, involving approximately by estimate \$12,000 or \$14,000, were absolutely necessary. Second in importance came the items of replacing defective and dangerous boilers with new ones and the retubing of old boilers. For this it was necessary to set aside a sum not less than \$25,000. These two groups of items practically covered the whole amount to be set aside for summer work. To these it was necessary to add \$3,564, for insuring boilers for a term of three years, the former policy expiring in May, and for the first time \$1,137 was paid for the Johnson Automatic Service for the current year, this item having previously been paid in the succeeding year.

This meant cutting down and using most careful judgment in refusing many kinds of requests for equipment, etc., which are sent in by the masters from day to day through the inspectors. The work was completed at both the Quincy and Tyler Street Schools, with only very slight inconvenience and delay in opening these schools at the beginning of the regular school term. The reports of the insurance company having such matters in charge, with regard to defective boilers, etc., were not received by the department until well along in the summer. Plans then had to be drawn and contracts let after proper advertising. This meant in some cases a delay, which was unfortunate. By securing competitive figures on groups of work of a similar nature, always from responsible people,



enough savings were made so that certain plumbing items and masonry items, all making for safety and health, might be undertaken and completed within the appropriation.

#### SAVINGS BY CONTRACT.

A comparison of contracts awarded during the year 1908-09 and those awarded during 1907-08 shows the following figures:

	1907-08.	1908-09.
Masonry . . . . .	\$11,788 25	\$21,342 99
New boilers . . . . .	2,950 00	12,898 75
Other heating work . . . . .	7,370 00	12,299 82
Roofing . . . . .	430 64	8,521 87
Electric work . . . . .	6,756 19	9,010 93
Plumbing . . . . .	1,702 66	8,489 45

In addition to this during 1908-09 contracts for various other kinds of work were awarded as follows:

Carpentry . . . . .	\$11,125 71
Building portables . . . . .	6,365 27
Painting and tinting . . . . .	5,072 00
Miscellaneous work . . . . .	3,467 92
Moving portables . . . . .	4,609 00
	<hr/>
	<u>\$30,639 90</u>

Since the Commission has been organized as at present, it has been deemed advisable to do only the smallest amount of tinting and whitening and to incur only the least expense for the so-called repolishing and refinishing of furniture. Although this last item appears on the draft of 1908-09 as amounting to \$36,529.60, of which a very small part was expended for new furniture, almost this entire sum was incurred before March, 1908. It was in this particular item, as proved by the rigid examination of the Finance Commission, that more than a considerable portion of the charges of loose and unprofitable expenditures was verified.

It is interesting to note the value of contract work as against dividing one kind of work among various mechanics in various districts. *For example*, in the matter of catch-basins the records show that in 1907 catch-basins in 49 school yards were cleaned and repaired for the sum of \$1,484.71. In 1908 by contract 338 catch-basins were cleaned for \$728. In the past the matter of replacing sash cords in windows in the schools has been a considerable item. This year nearly all the districts have been covered by contract. In 1907 the price of putting in a sash cord averaged at least \$1. In many districts this same work is being done by contract for 55 cents a cord.

It seems absolutely just to the department and the City of Boston to record here certain units of prices for work now done

by responsible contractors, as compared with similar work given out without competition in the past:

	1907-08.	1908-09.
Cleaning and repairing catch-basins,	\$10.91 each.	\$2.15 each.
Replacing window cords . . . . .	\$1. (Average.)	\$0.49. (Average.)
Painting kindergarten lines . . . . .	\$13. (Average.)	\$7. (Contract.)
Putting on storm windows . . . . .	\$858.05	\$352.25
Setting glass (ordinary size) . . . . .	\$1 to \$3	\$0.75 to \$0.90
Housing topmasts . . . . .	\$160.25. (Last done in 1906.)	\$100
Building portables . . . . .	\$2,197.25 each.	\$1,229.61 each.

It must be borne in mind that, because of the occasional changing of inspectors' districts, the co-operation of department heads and the scrutiny given by more than one commissioner to all items of work of any importance, the responsibility for authorization, as well as the cost of a job, must be shared by various persons.

Cleaning furnaces in schools and portable buildings was done last summer by contract. The heating department reports that this work was never done so well and comparative figures of cost follow:

## REPAIRING FURNACES.

	1907-08.	1908-09.
Portable buildings and schoolhouses . . . . .	\$2,536 59	
Portable buildings . . . . .		\$367 00
Schoolhouses . . . . .		1,925 15
		<u>\$2,292 15</u>

## EFFECT OF PUBLICITY AND OPEN BIDDING.

Publicity of the work of the department and a real effort to convince contractors of all kinds that specifications have been written with the idea of their being adhered to, have resulted in a more general bidding on every kind of work. The contract has been signed for certain furniture constantly used in the schools, and the comparison of prices paid in 1907 with the contract prices of 1908 follows:

	1907-08.	1908-09.
Teacher's swivel chairs . . . . .	\$6 25	\$5 25
Visitor's chairs . . . . .	1 75	1 62½
Rocking chairs . . . . .	4 35	2 25
Willow chairs . . . . .	3 95	4 25
Teachers' room chairs . . . . .	1 75	1 65
Kindergarten chairs . . . . .	75	65
Rubber tips . . . . .	60*	1 00*
Willow couches . . . . .	15 00	13 00
Mattresses . . . . .	8 00	5 00
Tablet arm-chairs . . . . .	5 33	4 00
Teacher's tables . . . . .	8 00	7 50

\* Per dozen.

Special attention is being paid to the matter of equipment for nurses. Cabinets, tables, etc., were placed in the following schools during the year 1908-09:

Hyde.	Martin.
Franklin.	Bunker Hill.
Harvard.	William E. Russell.
Dwight.	Adams.
Lawrence.	Lincoln.
Quincy.	Everett.

In the latter part of the year the commissioner in charge of this work visited, with the supervising nurse, many of the schools with a view to improving the quarters set aside for the nurses, building rooms, where such were necessary, and placing additional equipment wherever it was needed. Although this work will be charged to the appropriation for 1909-10, it being undertaken at so late a period of 1908-09 that the new appropriation will become available before the bills for this work are received, it seems well to speak of it, as it was ordered, and the greater part of it well under way, before February 1, 1909.

#### SAVING IN PORTABLE BUILDINGS.

Portables built by School Committee, average price . . . . .	\$1,409 00
Portables built by Schoolhouse Commission, prior to 1907, average price . . . . .	1,785 00
Portables built by Schoolhouse Commission in 1907, average price . . . . .	2,197 25
Portables built by present Schoolhouse Commission in 1908, average price . . . . .	1,229 61

In regard to portable buildings: A problem that has constantly confronted the department has been the matter of making a portable school building, that is, a building to house one class, a building which might be quickly put up and as quickly taken down and moved to another section of the city when required. As reported on March 25, 1902, by the late Mr. Cass of this department, the average price of the twelve portable buildings built by the School Committee, including heating, ventilation and painting, where there was painting, was \$1,409. The average price of forty-eight buildings built by the Schoolhouse Commissioners was \$1,785 each. In 1907-08 four portable buildings were built by the Board, the contract price, including heating, being \$8,789.

Although these buildings were intended to be *portable*, the bids submitted from a group of builders and movers, from whom bids were asked, ranged from about \$400 to over \$800 each. In other words, in some cases it cost half the price of the building to take it down and move it from one section of the city to another. Knowing the need of portable buildings for added accommodation, especially in the Phillips district in the West End, with the repair fund reduced to a minimum, most careful



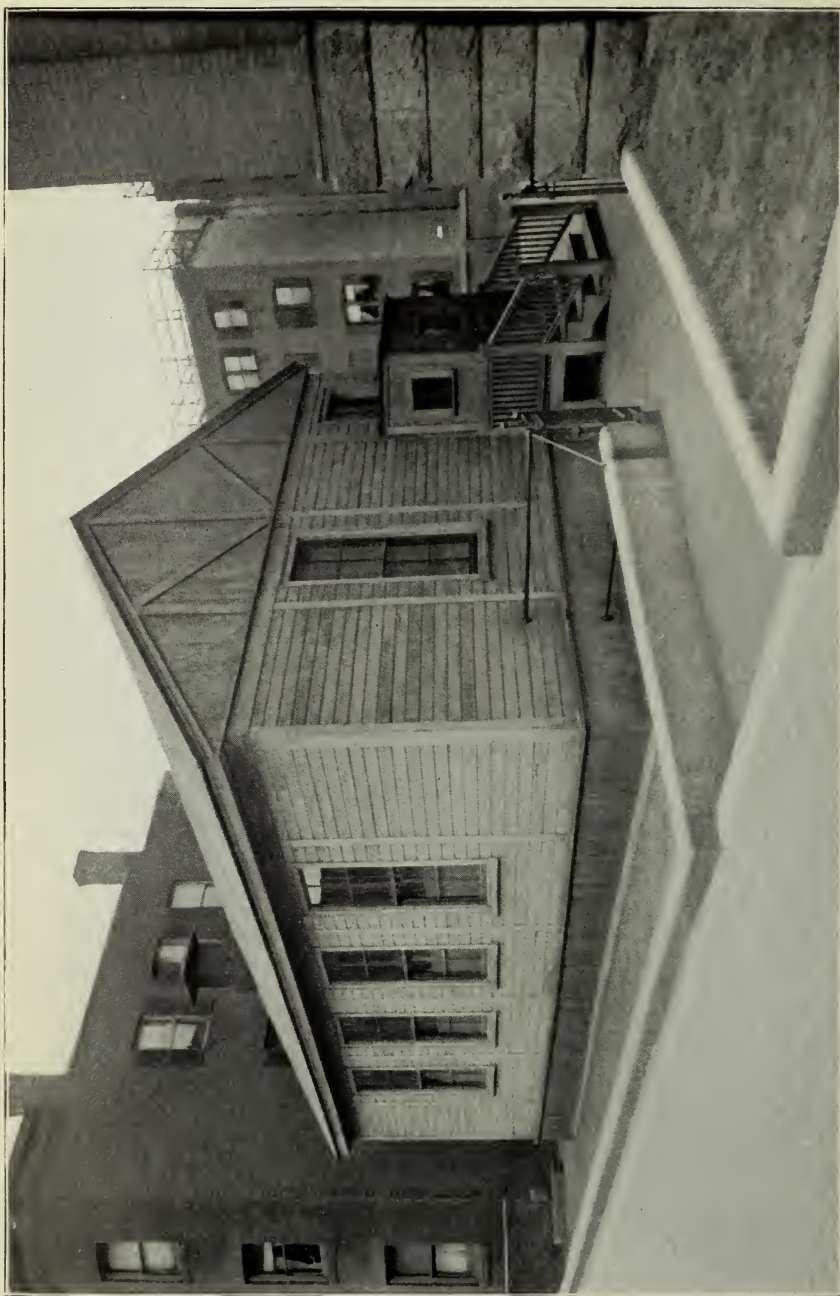


INTERIOR OF PORTABLE BUILDING IN THE YARD OF CHOATE BURNHAM SCHOOL.









OLD TYPE OF PORTABLE BUILDING IN YARD OF CHARLES C. PERKINS SCHOOL.

economy had to be used for this necessary item. The department secured from a portable house construction company four portable school buildings, delivered in Boston, for the sum of \$2,320. These were set up on the lot taken for the new school in the Phillips district, on South Russell street, and cost, including all additional items, heating, etc., \$1,229.61 each. The firm of contractors that set up the buildings in Boston has made a preliminary estimate that any one of the buildings may be taken down and set up in another section of the city for approximately \$250.

The department feels warranted in stating to your Honor that every problem of repair work has been given most careful consideration. The Commissioner having these particular matters in charge has had not only advice and assistance from the departmental heads, but the opinion and testimony of experts outside, and of contractors who are in a position to secure the most skilled and accurate judgment. A most careful examination of the work done and a most thorough, almost searching investigation by testimony and through the heads of departments, as well as inspectors, would seem to confirm a statement publicly made that the department is getting a dollar's worth of work and material for every dollar expended.

#### THE SYSTEM ON REPAIR WORK.

In regard to repairs, the system followed may be thus summed up.

Briefly, a master makes a written request for repairs, the inspector covering that district examines it, a commissioner approves or disapproves, and, if approved, the inspector makes an estimate. If the estimate exceeds \$25, competitive figures are requested from mechanics or contractors of good standing. The names of such contractors or artisans are given by the Commissioner and such Commissioner opens and awards the bids, almost invariably to the lowest bidder. On January 1, 1909, the experiment was tried of authorizing the masters to undertake petty repairs, such as carpentry, not to exceed one day's labor, setting glass, putting in window cords and repairing locks.

The Commissioner having in charge the matter of repairs feels that much credit should be given to the Chairman of the Board for his important idea, applied early in the year 1908, of calling together once a month the heads of departments and inspectors. These meetings not only provide an opportunity for the reports of the needs in the various districts, but also insure a co-operation by the various departments, which means the completion of various kinds of work systematically and economically. The department is to be congratulated upon the value of the heads of the various divisions, the heating division in charge of Mr. Eveleth, the electrical division in

charge of Mr. Hatch, and the civil engineering division in charge of Mr. Austin, who has also temporary charge of the draughting department.

Since the organization of the present Commission, one Commissioner has personally inspected every estimate and every bill for such work before approving the bill. Whether a coincidence or not, the estimates now vary little from the final bill, whereas in the past, under what appears to have been a perfunctory signing of bills, the final bills exceeded the estimates anywhere from 10 to 100 per cent.

It has been the definite aim of this Commission, as at present organized, to treat the matter of repairs as trustees of private property should treat such matters. It has been the constant aim of the department thus organized to make repairs and not votes. A man's politics, whatever they may be, do not prevent him from commissions, provided his work is satisfactory. All inspectors are directed rigidly to insist upon work being done according to specifications.

#### THE POLICY FOR 1909-10.

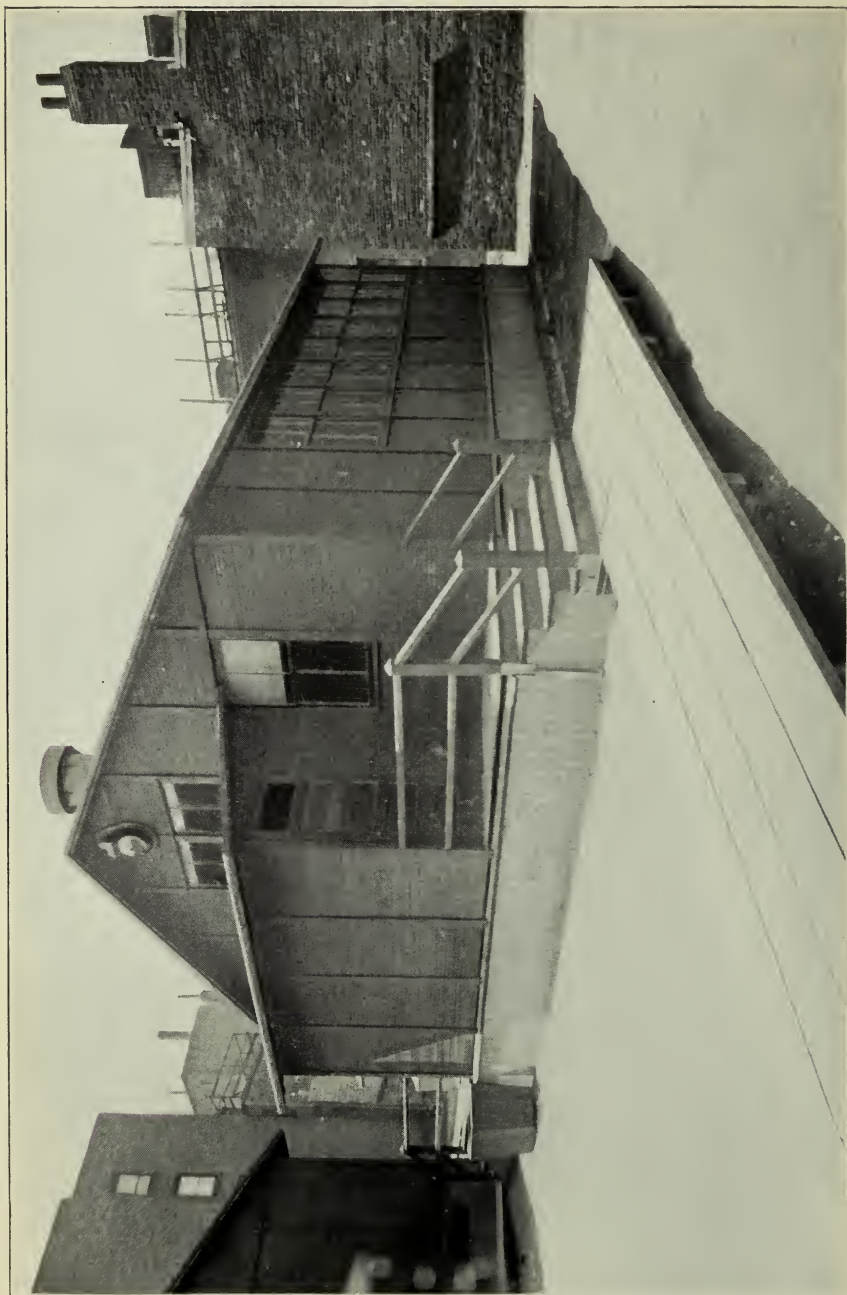
For the year 1909-10 I beg to report to your Honor that a definite policy for the disposition of the repair fund budget—*almost intact*—has been outlined. This means that a large number of matters of major importance will be well in hand, plans drawn, specifications made, contracts let, and all preparations made to begin the work immediately upon the closing of the schools in June.

No business, public or private, may be conducted without a considerable confidence; no Commissioner and no body of Commissioners could see every identical item of repair requested by the master and approved by the inspector. An amiable construction of a specification, or an unwarranted approval of a bill for work performed, by an inspector cannot always be detected. Specifications drawn with the intention of preventing some contractor from making a low figure, because others invited to bid will bid on specifications less strict and expensive, may not always be prevented by any rigid inspection on the part of the Commissioners in charge. This brings to mind certain changes in the force of inspectors which occurred early in the year. So far as the disposition of the money of the city is concerned, it matters little whether the approval of a bill far in excess of that which should have been submitted, was done maliciously, carelessly, or amiably. The result is the same to the city's purse. It matters little whether work which is not necessary to be done is ordered through friendliness to a contractor or a master, a commissioner, or even the appointing power, the result to the city's purse is the same.

JAMES B. NOYES,  
*Commissioner.*







NEW TYPE OF PORTABLE BUILDING IN LOT, JOY AND SOUTH RUSSELL STREETS.

## DISPOSITION OF THE REPAIR FUND IN DETAIL.

Below is appended a comparison of all items of repairs, administration expenses, etc., of the fiscal years 1907-08 and 1908-09.

*Repairs:*

	1907-08.	1908-09.
Carpentry, lumber and hardware,	\$48,696 13	\$54,058 30
Furniture, new, and repairing old,	44,306 14	36,529 60
Heating apparatus . . . . .	33,327 93	40,731 56
Roofing and metal work . . . .	17,280 00	17,928 76
Painting and glazing . . . . .	20,084 80	16,760 33
Mason work, paving and drains .	13,081 65	42,745 04
Plumbing repairs . . . . .	13,105 78	12,036 30
Electric fixtures and wiring . .	10,025 51	6,499 73
Electric bells and telephone systems . . . . .	2,593 95	5,971 72
Grading yards . . . . .	5,985 48	2,372 65
Slate blackboards . . . . .	4,831 37	2,820 37
Gas fixtures and installing . . .	3,181 89	3,023 97
Ventilation (galvanized iron work) . . . . .	6,748 36	3,247 49
Iron and wire work . . . . .	4,783 35	4,433 52
Whitening and tinting . . . . .	17,885 69	1,149 20
Automobile expenses . . . . .	4,434 55	2,908 97
Care and cleaning . . . . .	1,701 99	1,646 38
Janitors' supplies . . . . .	260 15	507 75
Locksmithing . . . . .	1,851 58	1,902 77
Planting and care of lawns . . .	1,660 90	708 23
Blackboards, repairs of . . . .	4,153 13	1,784 99
Teaming . . . . .	1,340 79	1,265 57
Flagstaffs and repairs . . . . .	781 54	1,743 54
Motors and engines . . . . .	776 46	1,634 83
Gymnasium apparatus . . . . .	345 93	430 67
Rubber treads and matting . . .	230 94	126 81
Advertising, plans, etc. . . . .	42 23	258 17
Fire hose and extinguisher charges . . . . .	128 50	801 90
Removing snow from roofs . . .	2,311 80	
Fuel . . . . .	19 20	
Asphalt . . . . .	569 00	1,226 90
Shoring buildings . . . . .	1,241 25	1,081 47
Fire protection . . . . .		5,211 97
Insurance on boilers . . . . .		3,577 32
Concreting . . . . .		591 04
Exterminating moths . . . . .		552 63
Fire escapes . . . . .		407 01
Fire alarm . . . . .		321 54
Cleaning vaults . . . . .		29 10
Total repairs . . . . .	<u>\$267,767 97</u>	<u>\$279,028 10</u>



*Amounts Taken from Repairs:*

Electric clock systems . . . . .	\$2,212 88	\$1,749 27
Auxiliary fire alarm, rent and repairs . . . . .	4,687 50	2,078 18
Car tickets and travelling expenses . . . . .	853 50	1,109 62
Printing and postage . . . . .	2,449 84	1,705 21
Salaries of inspectors . . . . .	13,892 46	14,699 21
Horse keeping . . . . .	1,118 60	1,325 38
Total amounts set aside . . . . .	<u>\$25,214 78</u>	<u>\$22,666 87</u>

*Administration Expenses:*

Salaries of commissioners and clerks . . . . .	\$13,811 59	\$12,508 83
Rent of office . . . . .	2,100 00	2,100 00
Care of office and electric light . . . . .	1,106 80	1,076 50
Telephone and messenger service, Stationery . . . . .	725 02	764 50
Repairs and furniture . . . . .	337 49	804 22
Subscription, Dun's agency . . . . .	1,562 82	70 48
Ice . . . . .		105 00
		21 60
Total . . . . .	<u>\$19,643 72</u>	<u>\$17,451 13</u>

*Hired Buildings and Taxes:*

Rent roll . . . . .	\$16,940 00	\$14,298 90
Water rates and taxes . . . . .	733 53	55 00
Total rents and taxes . . . . .	<u>\$17,673 53</u>	<u>\$14,353 90</u>
Total of appropriation . . . . .	<u>\$330,300 00</u>	<u>\$333,500 00</u>

The repair work in the year 1907-08 was given out to a very large extent by order and not on competitive bids.

Contracts for major masonry items for the year 1908-09 include the following:

SCHOOLS.	1908-09.	Contracts.
Various schools.....	Cleaning catch-basins.....	\$728 00
Edward Everett.....	Building wall and pointing.....	149 00
Elbridge Smith.....	Brick work.....	392 40
Hull.....	Pointing.....	180 00
Minot.....	Pointing.....	489 50
Mary Hemenway.....	Grading.....	1,292 00
Paul Revere.....	Paving.....	292 40
Phillips Brooks.....	Pointing.....	350 00
Phillips Brooks.....	Paving.....	311 00

SCHOOLS.	1908-09.	Contracts.
Washington.....	Waterproofing.....	\$518 00
Andrews.....	Masonry, etc.....	672 00
Phillips Brooks.....	Building catch-basins.....	120 00
O. W. Holmes.....	Grading.....	549 00
Bigelow.....	Masonry.....	1,163 00
Samuel W. Mason.....	Masonry.....	750 00
Roxbury High.....	Pointing.....	159 00
Robert G. Shaw.....	Concrete work.....	187 50
Winship.....	Resurfacing coal pocket.....	197 10
Mary Hemenway.....	Resurfacing corner of building.....	149 97
Normal.....	Resetting edgestone, paving gutter, etc.....	145 26
Lewis.....	Waterproofing cold air duct.....	174 00
Quincy.....	Foundations.....	7,488 86
Tyler Street.....	Foundations.....	4,093 00
Drake.....	Two new chimneys.....	552 00
Normal.....	Repairing boiler setting.....	240 00

In 1907-08 contracts for the following items of masonry were awarded:

SCHOOLS.	1907-08.	Contracts
English High.....	Paving.....	\$250 00
Mather.....	Grading.....	2,660 00
Quincy.....	Foundations.....	2,500 00
Mechanic Arts High.....	Repairing boiler setting.....	335 00
Jefferson.....	Paving.....	700 00
Ellis Mendell.....	Masonry.....	175 00
Quincy.....	Shoring walls.....	503 25
Paul Jones.....	Paving and catch-basin.....	320 00
South Boston High.....	Grading.....	1,700 00
Paul Jones.....	Pointing.....	1,200 00
Mary Hemenway.....	Building wall.....	1,065 00
Paul Jones.....	Oiling exterior walls.....	380 00

In the matter of heating during 1908-09 new boilers were installed and set, and tubes put in old boilers, by contract in the following schools:

SCHOOLS.	1908-09.	Contracts.
Wells.....	Two new boilers.....	\$998 00
Appleton Street.....	New boiler.....	450 00
Old Mather.....	Two new boilers.....	890 00
John A. Andrew.....	Two new boilers.....	1,313 75
Dorchester Avenue.....	New boiler and piping.....	597 00
Appleton Street.....	Setting up and piping boiler.....	995 00
Wells.....	Setting up and piping boilers.....	2,280 00
John A. Andrew.....	Setting up and piping boilers.....	2,585 00
Old Mather.....	Setting up and piping boilers.....	1,875 00
Dorchester High.....	New tubes in boiler.....	330 00
Various schools.....	Retubing boilers.....	585 00

In 1907-08 the following new boilers were installed by contract:

SCHOOLS.	1907-08.	Contracts.
Girls' High.....	New boilers.....	\$1,220 00
Girls' High.....	Setting new boilers.....	1,270 00
North Harvard Street.....	New boiler.....	460 00

A comparison of contracts awarded for other work on heating apparatus during the years 1908-09 and 1907-08 shows the following:

SCHOOLS.	1908-09.	Contracts.
Frothingham.....	Additional radiation.....	\$135 00
Mt. Vernon.....	Additional radiation.....	107 00
Myles Standish.....	Additional radiation.....	288 00
Robert G. Shaw.....	Additional radiation.....	202 00
Cyrus Alger.....	Additional radiation.....	374 00



SCHOOLS.	1908-09.	Contracts.
Girls' High.....	Changes in apparatus.....	\$317 00
Various schools..	Fusible plugs in boilers.....	1,080 00
Various schools.....	Repairing steam apparatus.....	5,257 00
Fresh Air School.....	Changes in apparatus.....	108 00
Bowdoin.....	Changes in apparatus.....	657 00
Bowdoin.....	New engine.....	573 00
Quincy.....	Additional radiation.....	285 00
Various schools.....	Safety valves.....	352 17
Portables.....	Repairing furnaces.....	367 00
Various schools.....	Repairing furnaces.....	1,925 15
141 Savin Hill avenue.....	New furnace.....	160 00
Various schools.....	Fusible plugs.....	112 50
1907-08.		
Mather.....	Steam piping.....	230 00
Mary Hemenway.....	Changing apparatus.....	305 00
Comins.....	Repairing radiators.....	169 00
Various schools.....	Repairing boilers.....	563 00
Various schools.....	Repairing apparatus.....	5,998 00
W. L. P. Boardman.....	Additional radiation, etc.....	105 00

In the matter of roofing and roofing repairs the department completed three new roofs and arranged with competent roofers to make repairs on schools by contract as follows:

SCHOOLS.	1908-09.	Contracts.
Lincoln.....	New roof.....	\$1,275 00
Appleton Street.....	New roof.....	1,175 00
Rice.....	New roof.....	1,794 00
Phillips.....	Repairs.....	1,074 67
Brimmer.....		
Baldwin.....		
Franklin.....		
Washington Allston.....		
Everett.....	Repairs.....	811 00
Cushman.....		
Somerset Street.....		

SCHOOLS.	1908-09.	Contracts.
Hancock.....	Repairs.....	\$372 20
Pormort.....		
Sharp.....		
Wells.....		
Eliot.....		
Norcross.....	Repairs.....	438 00
Lawrence.....		
Kenilworth Street.....		
Adams.....		
Harvard.....		
Edward Everett.....	Repairs.....	539 00
Hyde.....		
Prescott.....		
Tileston.....		
Shurtleff.....		
Mason street building.....	New roofs.....	360 00
Six portables.....		
Six portables.....		
Bowditch.....		
	Strengthening roof.....	323 00
	1907-08.	
Bailey street.....	Repairing roof.....	430 64

Contracts for electric light, telephones, etc., were awarded as follows:

SCHOOLS.	1908-09.	Contracts.
George Street.....	Bells.....	\$343 00
Robert G. Shaw.....	Electric light.....	418 00
Various.....	Program bells.....	679 48
Bowditch.....	Telephones and clocks.....	992 00
East Boston Drawing.....	Lighting.....	188 00
Frothingham.....	Telephones.....	420 00
Franklin.....	Bells and telephones.....	648 00
Harvard.....	Telephones.....	401 00
Winchell.....	Fixtures.....	273 00
Bennett and Standish.....	Yard gongs.....	104 90

SCHOOLS.	1908-09.	Contracts.
Girls' High School Practical Arts.....	Reflectoscope.....	\$271 00
Girls' High.....	Light and telephones.....	1,628 00
Fresh Air School.....	Electric light.....	382 55
Agassiz.....	Electric light.....	649 00
Mary Hemenway.....	Telephones.....	598 00
Phillips.....	Electric light.....	1,015 00
1907-08.		
Sherwin.....	Mercury rectifier.....	363 75
Comins.....	Electric light.....	1,993 89
Wells.....	Electric light.....	1,287 00
Phillips.....	Electric light.....	240 00
Washington portables.....	Electric light.....	110 00
Quincy.....	Electric light.....	215 00
Mary Hemenway.....	Electric motors.....	515 55
English High and Latin....	Telephones and regulator.....	1,781 00
Winchell.....	Fixtures.....	250 00

A comparison of contracts awarded for plumbing work during the years 1908-09 and 1907-08 follows:

SCHOOLS.	1908-09.	Contracts.
Mary Hemenway.....	Hot-water boiler.....	\$193 60
Phillips Brooks.....	Work in cooking room.....	118 85
William E. Russell.....	Hot-water tank.....	329 00
Girls' High School Practical Arts.....	Plumbing.....	295 00
Horace Mann.....	New water supply.....	846 00
Baldwin.....	New sanitation.....	2,090 00
North Harvard Street.....	New sanitation.....	4,152 00
141 Savin Hill Avenue.....	Plumbing.....	139 00
Bowditch.....	Hot-water boiler.....	121 00
Dwight.....	Slate sinks.....	205 00
1907-08.		
Phillips Brooks.....	Urinal.....	635 00
103 Chambers Street.....	Plumbing.....	313 66
Lewis.....	Work in cooking room.....	329 00
All Saints' Hall.....	Plumbing and carpentry.....	425 00



The following is a list of miscellaneous items of work for which contracts have been awarded during the year 1908-09:

SCHOOLS.	1908-09.	Contracts.
Warrenton Street.....	Carpentry.....	\$185 00
Bowditch.....	Carpentry.....	367 00
Girls' High School Practical Arts.....	Carpentry.....	270 00
Auburn.....	Painting.....	196 00
Brimmer.....	Painting.....	196 00
Brighton High.....	Altering room.....	210 00
Charles Sumner.....	New floor.....	190 00
Copley.....	Window guards.....	190 00
English High.....	Painting after fire.....	522 00
	Carpentry after fire.....	275 00
Elbridge Smith.....	Carpentry.....	115 00
Various schools.....	Repairing and painting flagpoles.....	897 00
Hugh O'Brien.....	Window guards.....	189 00
Hugh O'Brien.....	Painting.....	197 00
Heath Street.....	Painting.....	105 00
Ira Allen.....	Painting.....	140 00
Jefferson.....	Painting.....	110 00
Lincoln.....	Painting.....	195 00
Jefferson.....	Painting.....	125 00
Old Mather.....	Plastering ceiling of boiler room.....	109 00
Moving Portables 14 and 27.....		930 00
Moving Portables 3, 47 and 90.....		1,640 00
Moving Portable 4.....		390 00
Paul Revere.....	Painting.....	130 00
Various schools.....	Housing topmasts.....	100 00
Various schools.....	Stairtreads.....	152 40
Washington.....	Apparatus case.....	117 50
W. L. P. Boardman.....	Painting.....	181 00
Girls' High School Practical Arts.....	Carpentry, kitchen.....	1,403 00
Shurtleff.....	New exit.....	390 00
Moving two portables.....		650 00
Howard Avenue Annex.....	Carpentry.....	310 00
Andrews.....	Strengthening floors.....	672 00
Copley.....	Painting.....	275 00

SCHOOLS.	1908-09.	Contracts.
Various schools.....	Cleaning carpets.....	\$357 65
Winship.....	Painting.....	266 00
Washington Street (Forest Hills).....	New steps.....	134 00
William W. Warren.....	Repairing fence.....	274 00
William H. Kent.....	Painting.....	338 00
Winthrop.....	Painting and tinting ten rooms.....	210 00
Washington Allston.....	Tinting.....	285 00
Washington Allston.....	New floors.....	736 00
Girls' High.....	Alterations.....	1,043 00
Christopher Gibson.....	Building fences.....	1,073 00
Brighton High.....	Laboratory generator changes.....	337 00
Roxbury High.....	Wardrobes.....	740 00
Roxbury High.....	Passageway.....	400 00
Hyde.....	New floors.....	629 50
Franklin.....	New floors.....	794 00
Portable 89.....	New floor.....	107 75
Plummer.....	New skylight.....	100 00
Fresh Air School.....	Alterations.....	175 00
Brighton High.....	Arm-chairs.....	132 00
Dwight.....	Building nurse's and store room.....	225 00
Everett.....	Building teachers' and store room.....	235 00
Franklin.....	Building nurse's and two store rooms.....	364 00
Moving portable to Phillips street.....		450 00
Practical Arts High.....	Standards for laboratory.....	155 40
Longfellow.....	Moving portable.....	549 00
Four portables, Joy street,	Building and completing.....	4,918 44
One portable, Choate Burnham yard.....	Completing.....	1,446 83
William E. Russell.....	Painting.....	207 00
Various.....	Reseating chairs.....	503 75
Various.....	Brass strips on water-closet seats.....	144 62
Brewster and Annex.....	Painting.....	145 00
Bartlett Street.....	Painting.....	112 00
Charles C. Perkins.....	Refinishing furniture.....	120 00
East Boston Evening Drawing.....	Benches.....	240 00
Various.....	Putting on storm windows.....	328 06
Lewis.....	Painting.....	125 00
Roxbury High.....	Reputtying sash.....	115 00

The following table shows the schools and the equipment for nurses ordered, together with the estimates:

SCHOOLS.	1908-09.	Estimates.
All Saints' Hall.....	Equipment.....	\$20 00
Blackinton.....	Equipment.....	37 00
Bowdoin.....	Awaiting report.....	
Bunker Hill.....	Heating, tinting, gas light, equipment.....	298 00
Chapman.....	Cabinet.....	13 00
Charles Sumner.....	Changing toilet, tinting, painting, repairing floor, etc.....	95 00
Comins.....	Lavatory, plumbing, heater, and equipment.....	188 00
Dillaway.....	Tinting, changing furniture, equipment....	100 00
Dudley.....	Lavatory, tinting, equipment, etc.....	233 00
Dwight.....	Building room, lavatory, equipment.....	183 00
Franklin.....	Building room, lavatory, equipment.....	175 00
Frothingham.....	Heating, weather strips, equipment, etc....	450 00
Gaston.....	Lavatory, tinting, painting, equipment, etc.	175 00
Gilbert Stuart.....	Lavatory, gas light, etc.....	140 00
Henry L. Pierce.....	Heat and equipment.....	75 00
Hillside.....	Lavatory, equipment, tinting, etc.....	57 00
John A. Andrew.....	Awaiting report.....	
Lincoln.....	Building room, lavatory, equipment.....	365 00
Lowell.....	Lavatory, equipment, etc.....	123 00
Martin.....	Lavatory, equipment, etc.....	98 00
Mary Hemenway.....	Equipment.....	50 00
Mather.....	Lavatory.....	100 00
Minot.....	Carpentry.....	25 00
Phillips Brooks.....	Laying floor, lavatory, equipment.....	140 00
Prescott.....	Building room, tinting, painting, lavatory; light, equipment.....	365 00
Sherwin.....	Lavatory, tinting, equipment, etc.....	184 50
William E. Russell.....	Lavatory, electric heater.....	215 00



## APPENDICES.

## APPENDIX I.

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 APPROPRIATION FOR LAND AND BUILDINGS FOR SCHOOLS.
 

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## I.

## GENERAL STATEMENT.

The following statement shows the expenditures on account of the above appropriation from February 1, 1908, to February 1, 1909:

February 1, 1908, balance	
of appropriation. . . . .	<u>\$2,098,578 08</u>

## EXPENDITURES.

Expended for sanitation:	
Painting latrines . . . . .	\$165 82
Amount expended for fire protection:	
Fire extinguishers and escapes . . . . .	619 00
Expended for sites, erecting, grading and planting of lots and furnishing new buildings:	

*Charlestown High.*

Building . . . . .	\$2,093 47	
Furnishing . . . . .	<u>2,917 50</u>	5,010 97

*Extension Francis Parkman.*

Building . . . . .	\$45,399 33	
Furnishing . . . . .	<u>3,647 51</u>	49,046 84

<i>Carried forward</i> . . . . .		<u>\$54,842 63</u>
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## SCHOOLHOUSE DEPARTMENT.

49

<i>Brought forward</i>			\$54,842 63
<i>Extension Mechanic Arts High.</i>			
Building	.	.	\$350,436 39
Furnishing	.	.	3,122 46
			<hr/>
			353,558 85
<i>Normal and Latin School Group.</i>			
Building	.	.	\$33,233 71
Furnishing	.	.	16,552 28
			<hr/>
			49,785 99
<i>Elementary School, Phillips District.</i>			
Building	.	.	5,257 50
<i>Hobart Street, Bennett District.</i>			
Building	.	.	\$73 36
Furnishings	.	.	210 58
			<hr/>
			283 94
<i>Manual Training, Quincy District.</i>			
Building	.	.	\$6,030 91
Furnishings	.	.	306 50
			<hr/>
			6,337 41
<i>Grammar School, City Point.</i>			
Site	.	.	2,334 50
<i>Addition Dorchester High.</i>			
Building	.	.	\$7,550 00
Furnishings	.	.	326 00
			<hr/>
			7,876 00
<i>Elementary, Plummer, Alterations.</i>			
Building	.	.	\$6,672 47
Furnishings	.	.	635 03
			<hr/>
			7,307 50
<i>Elementary, Winthrop-Brimmer District.</i>			
Building	.	.	\$57,652 75
Borings	.	.	63 50
			<hr/>
			57,716 25
<i>Grammar School, Dearborn District.</i>			
Building	.	.	836 03
			<hr/>
<i>Carried forward</i>	.	.	\$546,136 60



<i>Brought forward</i>		\$546,136 60
<i>Grammar School, Edward Everett District.</i>		
Building		59,527 58
<i>Winchell School Addition.</i>		
Building	\$205 29	
Furnishing	59 77	
	<hr/>	265 06
<i>Eliot School, Master's Office.</i>		
Building	\$4,324 84	
Furnishing	142 57	
	<hr/>	4,467 41
<i>Elementary School, Adams District.</i>		
Building	\$1,395 69	
Furnishing	220 00	
	<hr/>	1,615 69
<i>Elementary School, Blackinton District.</i>		
Building		40,600 85
<i>Elementary School, Dudley District.</i>		
Building		22,568 85
<i>Elementary School, Longfellow District.</i>		
Building		40 00
<i>Fire Protection.</i>		
Fire escapes	\$29,191 68	
Fire alarm	22,892 36	
Fire protection	11,548 52	
Fire hose and extinguishers	866 51	
	<hr/>	64,499 07
<i>Miscellaneous.</i>		
Engineering expenses	\$1,990 12	
Incidental expenses, including salaries, blue prints, engineer supplies, stationery, car fares and travelling expenses	29,308 27	
	<hr/>	31,298 39
Total expenditures of 1908-09		<hr/> \$771,019 50
<i>Carried forward</i>		\$771,019 50

## SCHOOLHOUSE DEPARTMENT.

51

<i>Brought forward</i> . . . . .	\$771,019 50
Amount voted and set aside, but not expended to date by Schoolhouse Commissioners for fire protection, engineering and office expenses, sites, construction and furnishing of new buildings . . . . .	1,317,104 81
Balance of appropriation undistributed . . . . .	10,453 77
	<hr/>
	<u>\$2,098,578 08</u>

## II.

## SUBDIVISION OF EXPENDITURES.

*Land and Buildings for Schools, 1908-09.*

High Schools . . . . .	\$416,231 81
Elementary Schools . . . . .	251,868 00
Fire Protection . . . . .	65,118 07
Manual Training School . . . . .	6,337 41
Miscellaneous Expenses . . . . .	31,464 21
	<hr/>
Total expenditures . . . . .	<u>\$771,019 50</u>

## III.

*Statement of Income, Land and Buildings for Schools.*

Amount received from sale of old buildings . . . . .	\$505 00
	<hr/>
Total . . . . .	<u>\$505 00</u>

## APPENDIX II.

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 APPROPRIATION FOR REPAIR AND ALTERATION  
 WORK, NEW EQUIPMENT, FURNITURE (NEW AND  
 REPAIRS TO OLD), RENTS AND TAXES, AND  
 EXPENSES OF THE COMMISSION.
 

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## I.

## GENERAL STATEMENT.

During the year February 1, 1908, to February 1, 1909, the following sums were expended by the Schoolhouse Department for Repair and Alteration Work, new Equipment, Furniture (new and repairs to old), Rents and Taxes, and Expenses of the Commission:

February 1, 1908, appropriation . . . .	<u>\$333,500 00</u>
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*Repairs and Equipment.**Carpentry:*

Repairs and alteration work . . . .	\$54,058 30
Flagstaffs and repairs . . . .	1,743 54
Locksmithing . . . .	1,902 77

*Furniture:*

New and repairs . . . .	36,529 60
Gymnasium apparatus . . . .	430 67

*Blackboards:*

New slate . . . .	2,820 37
Repairs . . . .	1,784 99

*Plumbing:*

Repairs and installing new . . . .	12,036 30
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*Roofing:*

Repairs and installing new . . . .	17,928 76
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*Painting:*

Painting, whitening, glazing . . . .	17,909 53
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<i>Carried forward . . . .</i>	<u>\$147,144 83</u>
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*Brought forward* . . . . . \$147,144 83

*Heating:*

Repairs and installing new apparatus . . . . .	40,731 56
Ventilation, galvanized iron-work . . . . .	3,247 49
Motors and engines . . . . .	1,634 83
Insurance on boilers . . . . .	3,577 32

*Masonry:*

Repairs and alteration work . . . . .	42,745 04
Grading yards . . . . .	2,372 65
Asphalting . . . . .	1,226 90
Shoring buildings . . . . .	1,081 47
Planting and care of lawns . . . . .	708 23
Concreting . . . . .	591 04
Exterminating Gypsy Moths . . . . .	552 63
Cleaning vaults . . . . .	29 10

*Electrical:*

Electric wiring and fixtures . . . . .	6,499 73
Electric bells and telephone systems . . . . .	5,971 72
Gas fixtures and installation . . . . .	3,023 97

*Fire Protection:*

Fire protection . . . . .	5,211 97
Fire hose and extinguishers . . . . .	801 90
Fire escapes . . . . .	407 01
Fire alarm . . . . .	321 54

*Miscellaneous:*

Iron and wire work . . . . .	4,433 52
Care and cleaning . . . . .	1,646 38
Teaming . . . . .	1,265 57
Janitors' supplies . . . . .	507 75
Advertising, plans, etc. . . . .	258 17
Rubber treads and matting . . . . .	126 81

*Administration Expenses.*

Salaries, Commissioners and Clerks . . . . .	\$12,508 83
Salaries, Inspectors . . . . .	14,699 21
Automobile expenses . . . . .	2,908 97
Rental of offices . . . . .	2,100 00
Auxiliary fire alarm rental . . . . .	2,078 18
Electric clock systems, care of . . . . .	1,749 27
Printing and postage . . . . .	1,705 21

*Carried forward* . . . . . \$313,868 80

<i>Brought forward . . . . .</i>		\$313,868 80
Horsekeeping . . . . .	1,325 38	
Car fares, travelling expenses . . . . .	1,109 62	
Care of office and electric light . . . . .	1,076 50	
Stationery, supplies, etc. . . . .	804 22	
Telephone and messenger service . . . . .	764 50	
Subscription Dun's Agency . . . . .	105 00	
Office furniture and repairs . . . . .	70 48	
Ice . . . . .	21 60	

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Total repairs and administration expenses . . . . .		319,146 10
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*Hired Buildings, Rents and Taxes.*

Beech-street Lot, Roslindale . . . . .	\$125 00
Bennington-street lot, East Boston . . . . .	240 00
Bennington street (Baker Congregational Church) . . . . .	120 00
Chambers street, 27 . . . . .	856 90
Chambers street, 38 (St. Andrew's Church) . . . . .	1,080 00
Chambers street, 103 . . . . .	1,636 00
Church street, 30 . . . . .	63 00
Centre street lot, Dorchester . . . . .	200 00
Columbus avenue, 1446 . . . . .	74 00
Columbus avenue, 1448 (All Saints' Hall) . . . . .	2,400 00
East Fourth street, 448 . . . . .	613 00
Eliot street, Jamaica Plain (Trustees' Building) . . . . .	300 00
Hewlett street, 17 . . . . .	240 00
Jordan Hall . . . . .	30 00
Lauriat avenue, 170 . . . . .	1,200 00
Parmenter street, 20 . . . . .	1,013 00
Saratoga street, 399 . . . . .	300 00
South street (Roslindale Unitarian Church) . . . . .	600 00
Walnut street (Trinity Congregational Church) . . . . .	400 00
Walnut street (Walnut Hall) . . . . .	300 00
Walnut street (Appleton Methodist Episcopal Church) . . . . .	150 00
Warrenton street, 63A . . . . .	1,213 00
Washington street (Boston Female Asylum) . . . . .	1,200 00

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Total rents and taxes . . . . .		14,353 90
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Grand Total . . . . .		<u><u>\$333,500 00</u></u>
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## II.

## SUBDIVISION OF EXPENDITURES.

Elementary schools . . . . .	\$244,274 19
Administration and incidental expenses . . . . .	53,717 23
High Schools . . . . .	33,949 23
School Committee Building . . . . .	1,559 35
	<hr/>
	\$333,500 00
	<hr/>

## III.

## SUBDIVISION AS TO SCHOOLS.

Aaron Davis . . . . .	\$631 45
Abby W. May . . . . .	515 72
Aberdeen . . . . .	160 89
Adams . . . . .	969 73
Adams and Chestnut street . . . . .	246 44
Adams Street . . . . .	357 89
Agassiz . . . . .	597 96
Albert Palmer . . . . .	541 44
Andrews . . . . .	1,076 19
Appleton Street . . . . .	3,238 17
Asa Gray . . . . .	401 66
Atherton . . . . .	365 33
Auburn . . . . .	553 63
Austin . . . . .	344 54
Bailey Street . . . . .	347 86
Baldwin . . . . .	2,833 54
Bartlett Street . . . . .	801 83
B. F. Tweed . . . . .	193 94
Benjamin Cushing . . . . .	311 72
Benjamin Dean . . . . .	472 08
Benjamin Pope . . . . .	377 35
Bennett . . . . .	759 79
Bennett Branch . . . . .	133 07
Bigelow . . . . .	2,694 90
Blackinton . . . . .	849 66
Bowditch . . . . .	1,233 29
Bowdoin . . . . .	2,456 32
Brewster . . . . .	529 32
Brewster Annex . . . . .	87 31
Brighton High . . . . .	2,566 30
Brimmer . . . . .	1,544 87
Bunker Hill Grammar . . . . .	1,266 49
Bunker Hill Primary . . . . .	775 03
Canterbury Street . . . . .	84 85
	<hr/>
<i>Carried forward . . . . .</i>	\$30,320 56



<i>Brought forward</i>	\$30,320 56
Capen	254 48
Chapman	947 93
Charles C. Perkins	1,120 07
Charles Sumner	806 97
Charlestown High	796 20
Chestnut Avenue	109 12
Choate Burnham	196 81
Christopher Columbus	477 96
Christopher Gibson	2,013 09
Clinch	579 16
Comins	1,322 89
Common Building	18 50
Common Street	311 10
Cook	617 35
Copley	1,440 78
Cottage Place	53 31
Cudworth	559 32
Cushman	1,328 26
Cyrus Alger	663 82
Dearborn	2,501 02
Dillaway	657 01
Dorchester Avenue	863 54
Dorchester High	2,044 20
Drake	1,348 84
Dudley	1,350 26
Dwight	955 54
East Boston High	1,019 13
Edward Everett	1,362 68
Elbridge Smith	1,744 60
Eliot	545 28
Ellis Mendell	691 48
Emerson Primary	518 67
Emerson Grammar	819 79
English High	6,674 24
Evening Drawing School (City Hall, Charlestown)	22 59
Everett Grammar	1,547 69
Everett Primary	155 01
Farragut	559 08
Florence Street	362 18
Franklin	2,449 53
Francis Parkman	1,338 41
Frederic A. Whitney	339 26
Freeman	466 07
Frothingham	871 04
Frothingham Annex	80 28
Gaston	577 27
George Putnam	513 92
George Street	444 27
Gilbert Stuart	1,192 79
<i>Carried forward</i>	<hr/> \$77,953 35

<i>Brought forward</i>	\$77,953	35
Girl's High	5,489	95
Girl's Latin	128	54
Glenway	835	
Grant	274	06
Hancock	704	34
Hancock Annex	80	65
Harbor View Street	458	06
Harris	554	14
Harvard Grammar	859	51
Harvard Primary, Brighton	3,924	59
Harvard Hill	306	03
Hawes Hall	1,052	13
Heath Street	187	18
Henry L. Pierce	832	05
Henry Vane	125	73
Hillside	330	98
Hobart Street	157	01
Horace Mann	2,402	24
Howard Avenue	305	57
Howard Avenue Annex	550	97
Hugh O'Brien	1,570	13
Hugh O'Brien Annex	26	30
Hull	713	87
Hyde	607	78
Ira Allen	333	85
James Otis	450	90
Jefferson	654	19
John A. Andrew	4,714	49
John Boyle O'Reilly	306	52
John G. Whittier	407	38
Joshua Bates	464	00
Kenilworth Street	973	11
Lawrence	1,007	46
Lewis	1,943	85
Lewis Annex	97	38
Lincoln	2,825	14
Little Em'ly	15	38
Longfellow	1,035	71
Lowell	570	35
Lowell Annex	22	45
Lucretia Crocker	510	41
Lyceum Hall	6,495	10
Lyman	1,214	87
Margaret Fuller	216	03
Marshall	893	81
Martin	578	15
Mary Hemenway	3,653	51
Mather	1,608	90
Mayflower	56	52
<i>Carried forward</i>	\$130,652	97

<i>Brought forward</i>	\$130,652 97
Mayhew	515 60
Mead Street	228 24
Mechanic Arts High	582 32
Medford Street	595 21
Minot	1,051 82
Mt. Pleasant Avenue	251 96
Mt. Vernon Street	559 58
Miles Standish	923 13
Nathaniel Hawthorne	530 72
Noble	480 69
Noble Annex	54 18
Norcross	1,276 96
Normal	171 07
North Margin Street	125 05
Oak Square	150 12
Old Agassiz	136 21
Old Baker Street	41 25
Old Brighton High	10 88
Old Dearborn	718 93
Old East Boston High	857 59
Old Edward Everett	365 25
Old Gibson	1,052 56
Old Ira Allen	140 51
Old Mather	3,026 55
Old Parkman	575 86
Oliver Hazard Perry	569 36
Oliver Wendell Holmes	1,573 38
Parkman	477 66
Patrick A. Collins	127 09
Paul Jones	2,822 19
Paul Revere	1,384 10
Phillips	1,682 04
Phillips Brooks	2,253 54
Phillips Street	195 58
Phineas Bates	77 26
Pierpont	617 73
Plummer	589 25
Polk Street	409 50
Pormort	337 06
Prescott	937 45
Prescott Annex	52 48
Prince	1,601 69
Public Latin	1,422 92
Quincy	19,125 74
Quincy Street	265 70
Rice Training	3,360 41
Robert G. Shaw	1,219 07
Roger Clap	657 20
Roger Wolcott	2,006 78
<i>Carried forward</i>	\$188,840 39



<i>Brought forward</i>	\$188,840 39
Roxbury High	2,526 78
Rutland Street	510 67
Samuel G. Howe	284 67
Samuel W. Mason	1,389 22
Sarah J. Baker	742 95
Savin Hill	295 88
Savin Hill Avenue, No. 141	1,169 44
School Street	109 68
Sharp	913 51
Sherwin	2,411 33
Shurtleff	1,441 16
Simonds	94 88
Skinner	503 55
Smith Street	216 10
Somerset Street	315 33
South Boston High	2,494 02
Stephen M. Weld	257 99
Stoughton	663 04
Tappan	333 44
Thetford Avenue	593 18
Thomas Gardner	1,001 96
Thomas N. Hart	797 22
Thornton Street	124 14
Tileston	674 37
Tuckerman	236 42
Tyler Street	4,642 38
Union Street	25 00
Wait	612 94
Walnut Street	8,980 34
Warren	1,177 51
Washington	3,312 89
Washington Allston	1,485 02
Washington Allston Annex	237 46
Washington Street (Forest Hills)	286 39
Washington Street (Germantown)	82 41
Way Street	320 63
Wells	4,055 23
West Concord Street	623 30
West Roxbury High	1,362 87
William Bacon	590 65
William E. Endicott	396 76
William E. Russell	1,429 95
William H. Kent	890 83
William Wirt Warren	559 12
Williams	122 78
Winchell	356 07
Winship	1,550 12
Winthrop	1,439 09
Winthrop Street	3 50
<i>Carried forward</i>	\$243,484 56

<i>Brought forward</i> . . . . .	\$243,484 56
W. L. P. Boardman . . . . .	1,083 54
Wyman . . . . .	415 32
Administration and incidental expenses . . . . .	53,717 23
Portable Buildings (101) . . . . .	16,735 69
School Committee Building . . . . .	1,559 35
Kindergarten, No. 12 Carver Street . . . . .	195 75
Dennison House . . . . .	59 27
Spectacle Island School . . . . .	28 00
Open Air School, Parker Hill . . . . .	28 00
St. John's School, Moon Street . . . . .	69 00
Lincoln House . . . . .	14 80
Kindergarten, Ruggles Street . . . . .	9 75

*Hired Buildings, Rents, Taxes and Repairs.*

Beech Street Lot, Roslindale . . . . .	125 00
Bennington Street Lot, East Boston . . . . .	240 00
Bennington Street (Baker Congregational Church) . . . . .	120 00
Chambers Street, No. 27 . . . . .	902 55
Chambers Street, No. 38 (St. Andrew's Chapel) . . . . .	1,165 95
Chambers Street, No. 103 . . . . .	2,124 67
Church Street, No. 30 . . . . .	71 80
Centre Street Lot, Dorchester . . . . .	200 00
Columbus Avenue, No. 1446 . . . . .	74 00
Columbus Avenue, No. 1448 (All Saints' Hall) . . . . .	2,688 71
East Fourth Street, No. 448 . . . . .	693 13
Eliot Street, Jamaica Plain (Trustees Building); . . . . .	340 35
Hewlett Street, No. 17 . . . . .	260 93
Jordan Hall, Huntington Avenue . . . . .	30 00
Lauriat Avenue, No. 170 . . . . .	1,221 75
Parmenter Street, No. 20 . . . . .	1,042 25
Saratoga Street, No. 399 . . . . .	307 00
South Street (Roslindale Unitarian Church) . . . . .	622 00
Walnut Street (Trinity Congregational Church) . . . . .	400 00
Walnut Street (Walnut Hall) . . . . .	300 00
Walnut Street (Appleton Methodist Episcopal Church) . . . . .	150 00
Warrenton Street, No. 63A . . . . .	1,716 48
Washington Street, 1,008, (Boston Female Asylum) . . . . .	1,303 17
Total . . . . .	<u><u>\$333,500 00</u></u>

IV.

STATEMENT OF INCOME.

Received from sale of old furniture, etc. . . . .	\$2,104 58
Total . . . . .	<u><u>\$2,104 58</u></u>

## APPENDIX III.

## HIRED BUILDINGS.

## I.

Rooms in the following buildings have been hired for school purposes; rents, taxes, water rates, heating, lighting and janitors' expenses paid for the same, amounting to \$14,353.90, during the year from February 1, 1908, to February 1, 1909:

For	Location.	Remarks.
Blackinton District, Primary Class.....	Bennington street, Baker Congregational Church..	Rent per annum, \$600, from Oct. 19, 1908, including heat and janitor service.
Blackinton District.....	Bennington street, for Portable Building, 51...	Rent per annum, \$240, for use of land only.
Comins District, Primary Class..	1446 Columbus avenue....	Rent per annum, \$240, from Sept. 10, 1908, not including heat and janitor service.
Comins District, Kindergarten and Primary Classes.....	Germania Hall, Columbus avenue, 1448.....	Rent per annum, \$2,400, including heat and janitor.
Dorchester High School.....	Centre street, Dorchester, for Portable Buildings 10, 31, and 32.....	Rent per annum, \$200, for use of land only.
Emerson District, Primary Class.....	Saratoga street, 399.....	Rent per annum, \$300, not including heat or janitor.
Franklin District, Primary Classes.....	Asylum Building, Washington street, 1008.....	Rent per annum, \$1,200. City to furnish fuel.
Girls' High School of Practical Arts, Domestic Science.....	Church street, No. 30....	Rent per annum, \$216, from Sept. 16, 1908, not including heat and janitor service.
*Hancock District, Kindergarten and Primary Classes.....	Parmenter street, 20.....	Rent per annum, \$1,000, including heat and janitor.
Longfellow District, Primary Classes.....	Beech street, Phineas Bates Portable Building, 12....	Rent per annum, \$125, for use of land only

\* Vacated during the year.



HIRED BUILDINGS.— *Concluded.*

For	Location.	Remarks.
Longfellow District, Primary Class.....	Hewlett street, 17.....	Rent per annum, \$240, not including heat or janitor.
Longfellow District, Kindergarten Class.....	Unitarian Church, Roslindale.....	Rent per annum, \$600, including heat and janitor.
Manual Training School.....	Eliot street, Jamaica Plain,	Rent per annum, \$300, including heat and janitor.
Roger Wolcott District, Kindergarten and Primary Class.....	Lauriat avenue, 170, Dorchester.....	Rent per annum, \$1,200, including heat, water and janitor.
Shurtleff District, Kindergarten and Cooking School.....	East Fourth street, 484, South Boston.....	Rent per annum, \$600, not including heat, water, or janitor.
Washington District, Special and Ungraded Class.....	Chambers street, 103.....	Rent per annum, \$1,620, from Oct. 10, 1907, including heat and janitor.
Wells District, Primary Classes..	Chambers street, 27.....	Rent per annum, \$800. City pays one-half cost of gas and water rates, also pays for janitor and heating.
Wells District, Kindergarten and Grammar Classes.....	Chambers street, 38.....	Rent per annum, \$1,080, including heat, janitor, and water rates.
Winthrop District, Grammar Classes.....	Warrenton street, 63-63A.	Rent per annum, \$1,200. City pays water rates, heating and janitor.

## II.

## SUBDIVISION OF EXPENDITURES.

Amounts paid from appropriation for rents and taxes, for each hired building during the year 1908-09:

Beech-street lot, Roslindale . . . . .	\$125 00
Bennington-street lot, East Boston . . . . .	240 00
Bennington street (Baker Congregational Church)	120 00
Centre street lot, Dorchester . . . . .	200 00
Chambers street, 27, West End . . . . .	856 90
Chambers street, 38, St. Andrew's Chapel . . . . .	1,080 00
Chambers street, 103 . . . . .	1,636 00
Church street, 30 . . . . .	63 00
Columbus avenue, 1446 . . . . .	74 00
East Fourth street, 484, South Boston . . . . .	613 00
Eliot street, Jamaica Plain, Trustee Building . . . . .	300 00
Germania Hall, 1448 Columbus ave., Roxbury . . . . .	2,400 00
Hewlett street, 17, Roslindale . . . . .	240 00
*Jordan Hall . . . . .	30 00
Lauriat avenue, 170, Dorchester . . . . .	1,200 00
†Parmenter street, 20, North End Union . . . . .	1,013 00
Saratoga street, 399, East Boston . . . . .	300 00
Unitarian Church, Roslindale . . . . .	600 00
‡Walnut street (Trinity Congregational Church), . . . . .	400 00
‡Walnut street (Walnut Hall) . . . . .	300 00
‡Walnut street (Appleton Methodist Episcopal Church) . . . . .	150 00
Warrenton street, 63 and 63A, City Proper . . . . .	1,213 00
Washington street, 1008, City Proper, in rear . . . . .	1,200 00
	<hr/>
	<u>\$14,353 90</u>

\* Hired for graduation exercises of Mechanic Arts High School, on account of work being done at building.

† Vacated during the year.

‡ Hired on account of fire, Walnut-street School.

# APPENDIX IV.

Table Showing Cost of Buildings, Cost per Cubic Foot, Children Accommodated, and Cost per Pupil.

NAME OF SCHOOL BUILDING.	Grade.	Building, Heating, Plumbing, and Electrical Contracts.	Total Cost of Building.	PERCENTAGE CONTRACTS BEAR TO TOTAL COST OF BUILDING.				Cubical Contents.	Cost per Cubic Foot.	PROPORTION CONTRACTS BEAR TO COST PER CUBIC FOOT.				Cubic Feet, Class Room.	Children Accommodated.	Cost per Pupil.
				Bldg.	Heat.	Plumb.	Elec.			Bldg.	Heat.	Plumb.	Elec.			
Marshall.....	P.	B., \$106,516 75	\$124,467 65	85	8	4	3	516,624	24	20	2	1	1	37,000	700	\$177 81
		H., 9,483 00														
		P., 5,197 00														
William E. Russell.....	G.	E., 3,270 90														
		B., \$158,189 52	188,524 56	84	8	5	3	894,941	21	17	2	1	1	50,000	900	209 47
		H., 15,132 40														
		P., 9,580 29														
Farragut.....	P.	E., 5,622 35	150,526 43	85	8	4	3	652,630	23	19	2	1	1	47,000	700	215 04
		B., \$127,262 98														
		H., 12,432 00														
Paul Jones.....	P.	P., 6,821 45	114,370 35	83	9	5	3	510,386	22	18	2	1	1	36,000	700	163 39
		E., 4,010 00														
		B., \$95,095 75														
Ellis Mendell.....	P.	H., 10,376 00	122,267 20	85	8	4	3	517,035	24	20	2	1	1	43,000	600	203 78
		P., 5,324 00														
		E., 3,574 60														
Jefferson.....	G.	B., \$103,569 20	210,890 49	86	8	3	3	856,777	24	20	2	1	1	45,000	950	221 99
		H., 9,625 04														
		P., 5,658 11														
		E., 3,414 85														
		B., \$182,261 94														
		H., 16,927 15														
		P., 6,449 90														
		E., 5,251 50														



Washington.....	G.	B., \$203,001 16 H., 28,305 94 P., 21,417 05 E., 12,157 45	82	7	7	4	25	20	2	1	43,000	1,500	217 03
Christopher Columbus..	P.	B., \$130,000 08 H., 16,244 00 P., 15,519 00 E., 4,783 00	325,541 00										
John Boyle O'Reilly...	P.	B., \$95,712 50 H., 10,227 00 P., 4,640 00 E., 2,859 50	173,512 08	79	9	3	23	18	2	1	30,000	1,200	144 59
Oliver Hazard Perry...	G.	B., \$118,497 38 H., 17,621 50 P., 5,094 00 E., 4,352 75	112,839 00	85	9	2	25	21	2	1	32,000	700	161 20
Mather.....	G.	B., \$241,098 44 H., 27,807 00 P., 11,615 50 E., 8,782 05	140,145 63	81	12	3	24	19	3	1	44,000	700	208 78
Thomas Gardner *.....	G.	B., \$113,769 15 H., 15,994 04 P., 6,038 00 E., 4,466 38	289,332 99	83	10	3	21	17	2	1	42,000	1,600	180 83
Oliver Wendell Holmes,	G.	B., \$159,563 85 H., 21,930 18 P., 8,037 00 E., 6,116 99	140,267 57	81	12	3	19	15	2	1	52,000	700	200 38
Samuel W. Mason.....	P.	B., \$99,527 64 H., 10,447 00 P., 4,990 00 E., 3,360 00	195,648 02	81	12	4	20	16	2	1	41,000	1,200	163 04
Dearborn.....	G.	B., \$182,240 82 H., 20,874 00 P., 8,929 50 E., 5,087 00	118,324 61	84	9	3	27	23	2	1	31,000	700	169 03
John Greenleaf Whittier	P.	B., \$61,053 55 H., 7,510 70 P., 3,551 00 E., 2,590 90	217,131 32	84	9	3	22	18	2	1	47,000	1,050	206 66
			74,736 15	82	10	3	23	19	2	1	32,000	500	149 47

Table Showing Cost of Buildings, Cost per Cubic Foot, Children Accommodated, and Cost per Pupil. — *Concluded.*

NAME OF SCHOOL BUILDING.	Grade.	Building, Heating, Plumbing, and Electrical Contracts.	Total Cost of Building.	PERCENTAGE CONTRACTS BEAR TO TOTAL COST OF BUILDING.				Cubic Content.	PROPORTION CONTRACTS BEAR TO COST PER CUBIC FOOT.				Cubic Feet, Class Room.	Children Accommodated.	Cost per Pupil.
				Bldg.	Heat.	Plumb.	Elec.		Bldg.	Heat.	Plumb.	Elec.			
James Otis.....	P.	B., \$90,867 00 H., 8,767 00 P., 4,889 00 E., 3,295 00	\$107,818 00	84	8	4	4		26	22	2	1	34,000	600	179 70
Tuckerman.....	P.	B., \$61,875 79 H., 8,422 00 P., 4,226 70 E., 2,898 76	77,423 25	80	11	5	4		23	18	3	1	33,000	500	154 85
Wm E. Endicott.....	P.	B., \$64,745 25 H., 7,951 00 P., 3,667 91 E., 2,693 61	79,057 77	82	11	4	3		23	18	3	1	35,000	500	158 11
Sarah J. Baker.....	P.	B., \$130,016 23 H., 18,673 00 P., 7,625 00 E., 4,880 00	161,194 23	81	11	5	3		23	18	3	1	29,009	1,200	134 32
Nathaniel Hawthorne..	P.	B., \$54,682 82 H., 7,518 00 P., 3,100 00 E., 2,611 25	67,912 07	80	11	5	4		24	19	3	1	31,000	450	150 92
Charlestown High.....	H.	B., \$253,157 94 H., 18,711 25 P., 13,970 00 E., 10,216 00	296,055 79	86	6	5	3		23	19	2	1	.....	540	548 25
NORMAL AND LATIN GROUP.															
Common Building.....	H.	B., \$276,559 15 H., 26,338 97 P., 13,169 48 E., 13,169 48	329,237 08	84	8	4	4		23	19	2	1	.....	350	940 65
Normal School.....	H.														

Girls' Latin.....	H.	B., \$249,577.77 H., 23,769.31 P., 11,884.66 E., 11,884.65	297,116 39	84	8	4	4	1,388,807	23	19	2	1	1	.....	600	495 19
Patrick A. Collins.....	G.	B., \$148,397.59 H., 14,133.10 P., 7,066.55 E., 7,066.55	176,663 79	84	8	4	4	725,561	23	19	2	1	1	43,000	850	207 84
Edward Everett*	G.	B., \$81,668.66 H., 15,542.00 P., 4,665.00 E., 4,442.00	106,317 66	77	15	4	4	480,000	22	17	3	1	1	30,000	560	189 85
Nathan Hale *	P.	B., \$54,765.00 H., 6,667.00 P., 3,368.00 E., 2,520.00	67,320 00	81	10	5	4	362,000	18	14	2	1	1	30,000	480	140 26
Bishop Cheverus *...	G.	B., \$81,432.00 H., 11,795.00 P., 4,866.00 E., 4,844.00	102,937 00	79	11	5	5	540,000	18	14	2	1	1	30,000	640	160 84

\* Cost to February 1, 1909.

1. Number of new buildings erected, 29.																
2. Total amount of building contracts, lower elementary.....																9,530
3. Total amount of building contracts, upper elementary.....																10,650
4. Total amount of building contracts, high schools.....																20,180
5. Total for new buildings.....																20,180
6. Contract, Extension Mechanic Arts High School.....																\$180 93
7. Contract, Extensions Francis Parkman School.....																162 83
8. Contract, Addition, Winchell School.....																197 13
9. Contract, Addition, Hobart Street School.....																not been considered.
10. Contract, Master's Office, Eliot School.....																Common Building is used jointly by the pupils of the Normal and Girls' Latin Schools; hence the cost of this building and the cubical contents have been equally distributed between these two buildings.
11. Total.....																Patrick A. Collins School is now used as temporary quarters for the High School of Commerce.



## APPENDIX V.

## ARCHITECTS' SERVICES.

Every Architect employed by the Schoolhouse Commissioners of the City of Boston as the Architect for erecting a building is to perform the duties hereinafter provided.

SECTION 1.— *The Board*.— (a.) Is to furnish the Architect with the requirements and information for the design and construction of the building for which he is the Architect, and give the approximate cubical contents and proposed cost per cubic foot thereof.

(b.) Is to provide the services of domestic engineers to confer with the Architect during the preparation of preliminary studies, and when these are accepted by the Board to advise the Architect in the details of their work, and make the necessary working drawings and specifications for, and have the direction of, the heating, ventilating, and electric work for the building, said work being hereinafter designated as the domestic engineering;

(c.) Is to give the grade and lines of streets and adjoining lots;

(d.) Is to make all borings necessary to determine the quality of the foundations, and on request of the Architect, or of any person doing work on the building, furnish him full information relating to the above, the sewer, water, gas and electric service, and to the rights, restrictions, and boundaries of the lot on which the building is to be constructed.

SECT. 2.— *The Architect*.— (a.) Is to consult and advise with the Board and make such preliminary studies as will acquaint the Board with the contemplated arrangement, design, construction and cubical contents of the building, and enable it to agree with the Architect upon a definite limit of cost therefor, and to accept said preliminary studies as the basis of working drawings and specifications;

(b.) Is to make upon the basis of said preliminary studies one complete set of working drawings in ink on tracing cloth, floor and framing plans, sections and elevations at one-eighth scale, and such detail drawings on a larger scale as are necessary to explain the specifications;

(c.) Is to furnish, revise and correct for the printer one complete set of specifications for everything to be furnished or done in constructing the building, except the domestic engineering;

(d.) Is to loan to the Board, to make blue prints therefrom, the said set of working drawings;

(e.) Is to restudy and if necessary redraw, without charge, any or all of said drawings and specifications, if, owing to an unwarranted departure from the approved preliminary studies or to a needlessly extravagant or elaborate interpretation of them in said drawings and specifications, the lowest bid for doing the work in accordance therewith over-runs the limit of cost agreed upon by the Architect and the Board;

(f.) Is, upon the signing of contract, to deliver to the Board, to remain their property, two sets of blue prints mounted on cloth taken from the said set of working drawings, a perspective drawing of the exterior of the building suitable for reproduction, and at the conclusion of the work, a complete set of working drawings on tracing cloth, either the set previously referred to or a copy therefrom, which shall be corrected to agree with and embody all changes made during construction.

(g.) Is to make application for a building permit to the Building Department on a form signed by the Chairman of the Board, and deliver to the Building Department two sets of such blue prints from the said set of working drawings as may be required by the Building Department (the Board furnishing specifications to the Building Department);

(h.) Is to have general supervision of the domestic engineering and be the Architect of all other work to be done under any written contract for the construction of the building and render the full usual Architect's services, and supervision for such other work;

(i.) Is, in the form prescribed by the Board, to make all estimates and allowances for payments under any contract in which he is made the Architect of the work, and such estimates for the domestic engineering are to be accompanied by certificates of said Engineers as to their accuracy;

(j.) Is to advise with the Board on any changes in the building contemplated by the Board, and is to order changes when required by the Board so to do;

(k.) Is to cause the drawings and specifications furnished by him to conform to all regulations of law and public authorities, and to be in accordance with established methods of building construction, faithfully carry out all the foregoing provisions, use all proper knowledge, skill, and care therein, and be accountable for any failure so to do.

SECT. 3.—The city, as full compensation for the services aforesaid, is to pay the Architect  $2\frac{1}{2}$  per cent upon the cost of the domestic engineering, and 5 per cent upon the cost of all other work, payments to be made as follows:  $2\frac{1}{2}$  per cent upon all contracts other than those for domestic engineering is to be paid on the signing of such contracts, and thereafter  $2\frac{1}{2}$  per cent upon the value of the materials and labor, as specified in each estimate for payment under the contract, is to be paid on the making of the estimate, until the full payment aforesaid is made,

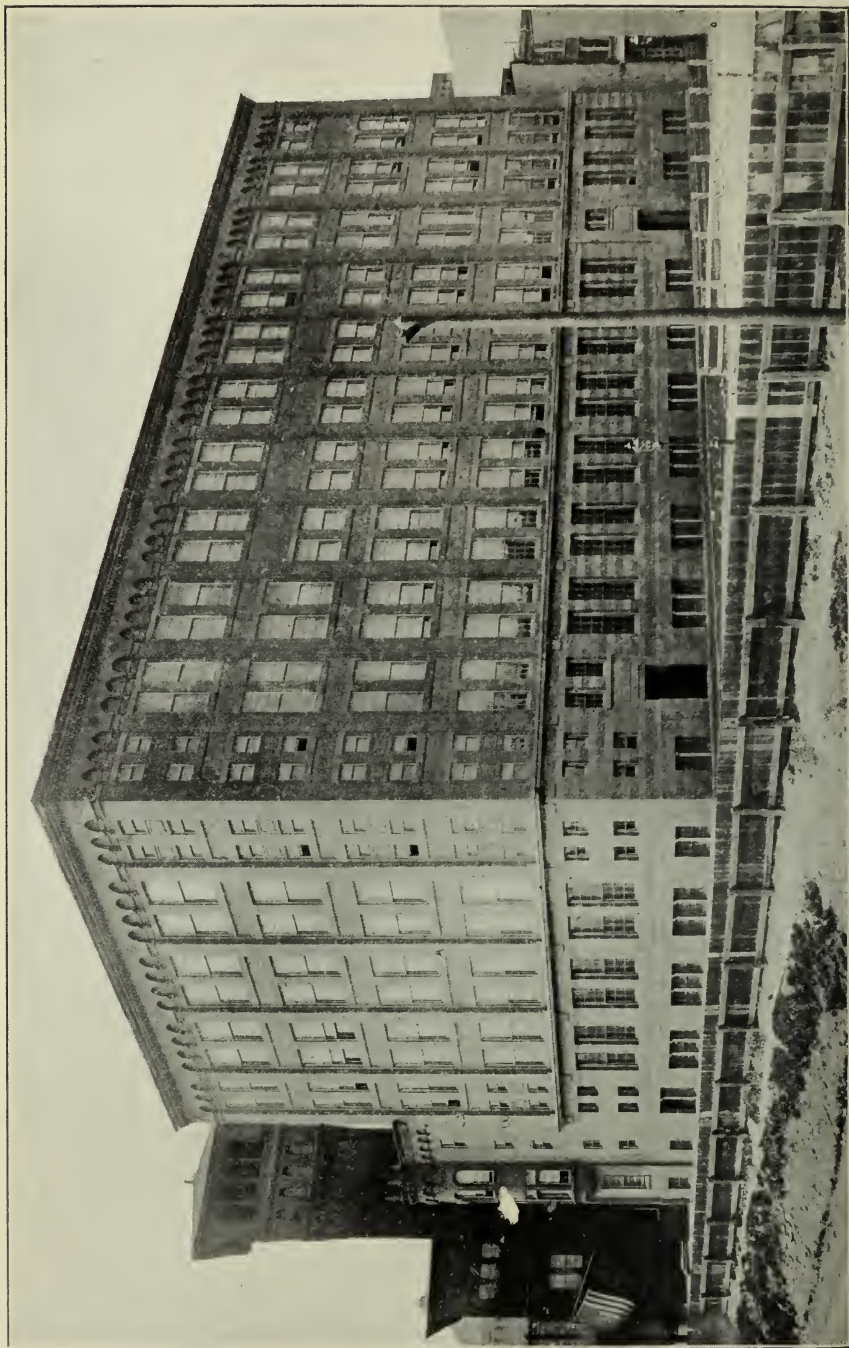
and if any thereof remains unpaid at the completion of the work it is then to be paid. When preliminary studies are completed, the value of the Architect's services to date shall be reckoned one-fifth of the estimated total commission; when working drawings and specifications are ready for contract, the value of his services to date shall be reckoned as three-fifths of said commission. If the Board discontinue the services of the Architect at any intermediate stage the value of his services shall be reckoned proportionately.

SECT. 4.—When for any reason other than those stated in section 2, paragraph *e*, above, the Board shall set aside the whole or any part of an Architect's studies, drawings, and specifications while retaining him to prepare corresponding new studies, drawings, and specifications, for the same school building, the city shall pay the Architect for the work thus set aside a sum not exceeding three times the actual cost of draughting, and the new work shall be paid for on a commission basis as stated in section 3, above.

SECT. 5.—In the above agreement the term "building" is used to define not only the structure itself, but all work in connection with it committed to the Architect by the order of the Board, as fencing, grading, roads, walks, planting, decorative painting, and sculptural decoration.







EXTENSION, MECHANIC ARTS HIGH SCHOOL, SCOTIA STREET, BOSTON.  
WHEELWRIGHT & HAVEN, Architects.

## APPENDIX VI.

## NEW BUILDINGS.

## LIST OF 1907.

**Item 5.—The Mechanic Arts High School.** The item for the extension of this school includes (a) the new building, (b) the transformation of the class-rooms of the old building into shops and drawing-rooms, (c) the rebuilding of the old basement floors and extensive readjustments of the old heating apparatus and plumbing. The work under (c) was unavoidable, consequently its cost, \$30,465.40, should not be considered a part of the cost of the extension.

The work of excavating for the new building was begun about December 1, 1907. It was soon discovered that the borings had not given reliable information concerning the character of the site, and it became necessary to abandon pile foundations and make new drawings for concrete foundations. In spite of the embarrassments and delays resulting from this change, the new building was occupied January 4, 1909, and the entire work will be substantially completed March 1, 1909.

The site of the extension is on the north side of the old building, with a frontage of 88.09 feet on Dalton street and 184.42 feet on Scotia street. The extension covers the entire area except a 10-foot alley at the west end. Area of the old site, 22,881 square feet; new site, 14,419 square feet—total, 37,300 square feet.

The new building is of first class fireproof construction, five stories, flat roof, exterior in common red brick, with red sandstone trimmings to harmonize with the old building. It provides for a chemical lecture-room, a physical laboratory, a library, a science lecture-room, a drawing-room, an addition to the master's office, twenty-six class-rooms, and an assembly hall seating 1,100. On each floor at the northeast corner is a lavatory for pupils, and on the mezzanine directly over each lavatory is a teacher's room.

The seatings of the chemical lecture-room and the science lecture-room are of a special type well adapted to economize space. They afford convenient storage for text books, so that these rooms can be used as home rooms for pupils. There are two rooms in the old building which may also be used as home rooms. The entire plant provides for about 1,500 pupils without very serious overcrowding.



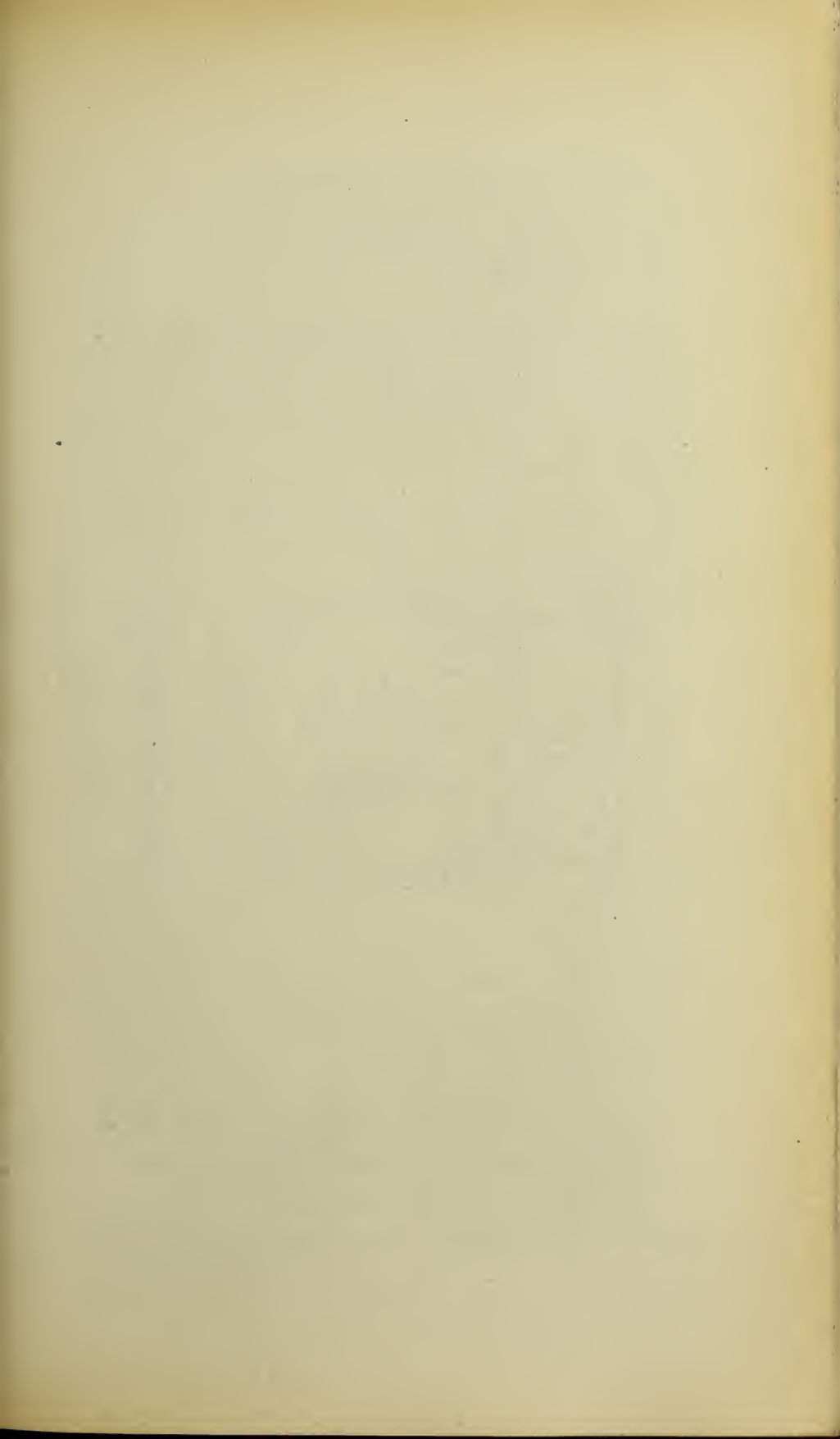
On the first floor of the old building will be three machine shops; on the second floor four wood-working rooms, and on the third floor two wood-turning rooms and two drawing-rooms. It is expected that the new equipment will be substantially completed before the beginning of the next school year.

The basement of the new building contains the coal-room, boiler and engine rooms, lavatories, and a lunch-room, equipped with a counter, 75 feet long, a large gas range, two steam tables for keeping food warm, and an ice chest. Special attention has been given to the fitting of this room on account of the long daily session which makes it imperative that every boy should have a substantial lunch.

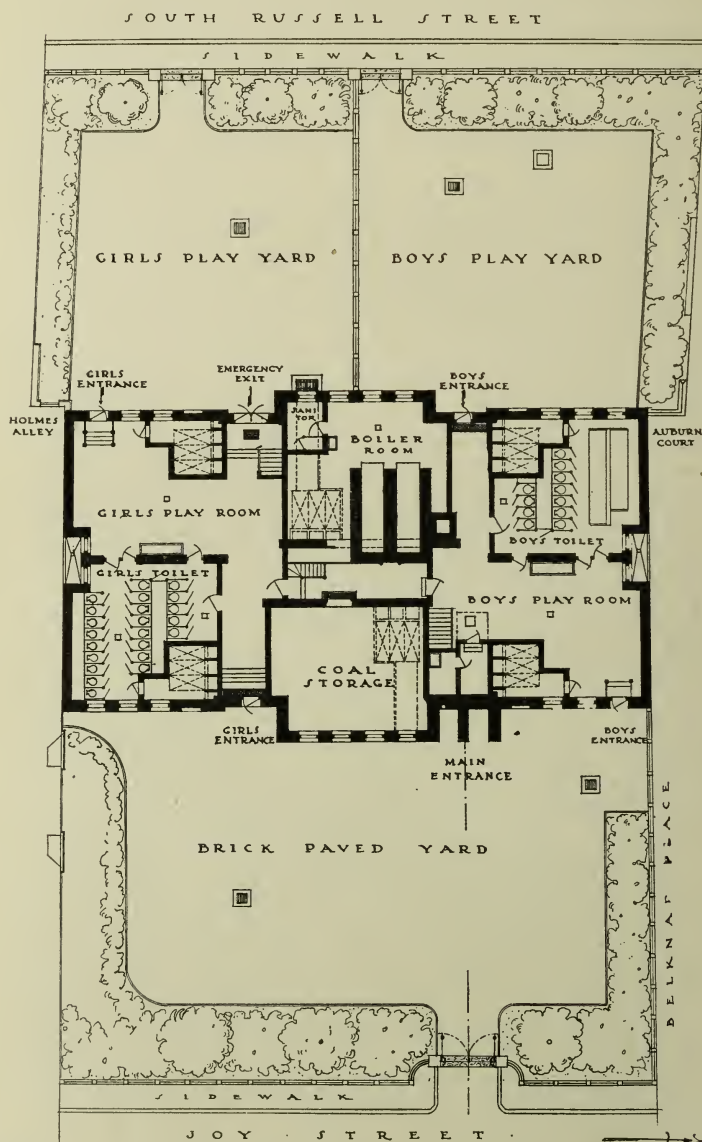
At the west end of the basement, in a one-story structure outside the main building, is a battery of three tubular boilers capable of generating 425 horse power. Current is conveyed to motors in each of the mechanical departments and to the motor that drives the fans from two units each, consisting of a direct connected engine and a 100-kilowatt generator. Adequate provision has been made for emergencies, since each of these units will furnish most of the power ordinarily required.

In the apparatus room on the second floor of the old building is a motor generator set consisting of a direct current motor, a direct current generator, and an alternating current generator. The latter will furnish three-phase alternating current at sixty cycles. The generators have a capacity of one kilowatt each, and the voltage may be varied from about one volt to twenty volts. All of these machines are connected to a switchboard on which are mounted controlling apparatus for the generators, measuring instruments, and the switches of the circuits to the various lavatories. The direct current is furnished to all laboratories and to the students' tables. The alternating current is supplied to the demonstration tables in the physical laboratories and the science lecture hall. In the various laboratories there are rheostats for controlling the voltage of the two generators and switches to control the currents supplied to the students' tables. Each student has a special connection board with binding posts, switch and fuse, from which current may be taken for the experiment to be performed. These switches and the wiring which supplies them are so arranged that the same current may be supplied to each student or that each student may have as much as may be necessary for his work. The instructor may connect into the circuit at the demonstration table an instrument which will measure the amount of current taken by the students. Provision is made for stereopticons in the assembly hall, science lecture-room and physical laboratories. One of those supplied to these laboratories is particularly adapted to the demonstration of optical phenomena.

The building is heated mainly by exhaust steam, but live steam may be used when required. The radiators automatically controlled are in two groups, (a) primary, in the heating



CITY OF BOSTON SCHOOLHOUSE DEPTMNT  
 PHILLIPS DISTRICT  
 PETER FANEUIL SCHOOL  
 LOWER ELEMENTARY  
 JAMES T KELLEY · HAROLD S GRAVES ARCHITECTS



SCALE  
 1" = 10'

· BASEMENT · AND · LOT · PLAN



chambers, (b) supplementary, at the bottom of the fresh air ducts leading to each room. No direct radiation is used in the class-rooms. Fresh air is supplied by four plenum fans. Two of these fans provide for the rooms of the new building, one for the rooms of the old building, and one for the assembly hall. The heating and ventilation of the hall is independent of the rest of the system.

The entire plant is supplied with electric lights, telephones, electric bells and clocks controlled by a master clock, and a special fire-alarm system with some twenty different stations distributed throughout the old and new buildings. From each of these stations a signal can be given which will put into operation the fire drill by which all pupils pass out of the building in an orderly manner, and, if necessary, call the city fire department.\*

**Item 6.—The Phillips District**, an elementary school. This building is located on a lot of land lying between Joy street and South Russell street. To make the best possible use of the land the building extends across the lot north and south. The thoroughfare from one street to the other is only through the building. This plan gives all the rooms sunny exposure, the morning sun on one side, the afternoon sun on the other.

There are two playgrounds on the east and two on the west and a small amount of planted space on both sides.

The basement contains the playrooms, toilets for girls and boys, the entrances and staircases and the heating apparatus.

The building contains fifteen class-rooms of the new standard size to seat 44, and 3, one on each floor, slightly larger, to seat about 50. One room on the top floor has been appropriated for use as a manual training room.

The building is compactly planned and comes within the proper limits for floor area and within the limit of 30,000 cubic feet per class-room for its cube.

*Heating and Ventilation.—System.* The system for steam in this building will be low pressure gravity return. The system for air will be gravity. The ventilation will be stimulated by means of aspirating coils placed in the vent flues.

*Boilers.*—There will be two horizontal return tubular boilers of 64 horse power each, 60 inches in diameter and 16 feet 4 inches long, containing seventy-two 3-inch tubes, 15 feet long.

*Radiation.*—There will be a total of 8,300 square feet of radiating surface. Class-rooms will be warmed by indirect pin radiators, generally placed in brick heating chambers in the basement. Foot-warmers encased in galvanized iron and suspended from the basement ceiling are provided for the first floor corridor. Direct radiators will be placed in the ward-robies, master's and teachers' rooms and also in the basement play-rooms and sanitarieis.

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\* This description is furnished the Board by Dr. C. W. Parmenter, principal of the school.

*Temperature Control.*—The temperature of the air entering the class-rooms will be controlled by means of hand-mixing dampers, operated by the teachers.

*Toilet Ventilation.*—All water-closets in the basement sanitariums will be provided with outlets for seat ventilation, which will be connected together by means of galvanized-iron ducts and run in two separate flues to the top of the main ventilators. Connection will also be made to the space back of the urinals. Ventilation will be assisted by aspirating-coils placed in the main flues. The individual closets have similar seat vents.

*Warm Air and Vent Flues.*—These will be built of brick instead of galvanized iron as has been the former practice.

*Electric System.*—The building will be equipped with electric lights, a telephone system for interior communication, a system of electric clocks, controlled by one master clock, a system of program bells, also under control of the master clock, and a combined local and auxiliary fire-alarm system.

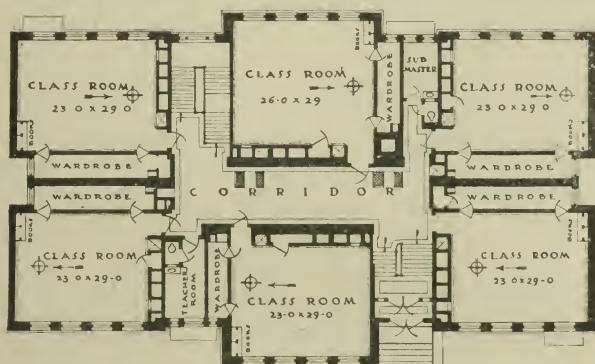
#### LIST OF 1908.

**Item 1.**—**The Edward Everett District**, elementary school, upper grades. This building has been described in previous reports. It is a fourteen-room upper elementary building. It contains in the basement, cooking-room, manual training room, play-rooms for boys and girls, toilets and the heating apparatus. On the first floor there are eight class-rooms. On the second floor six class-rooms and an assembly hall, occupying the central portion of the building. The class-rooms are all of the new standard size, 23 by 29, seating 44 pupils.

*Heating and Ventilation.*—The steam system is a combination of pump and receiver and gravity return. During the hours when the school is in session the condensation will be returned to the boiler by means of a steam pump. After school hours the fires can be banked, the steam pressure will be dropped and by means of by-pass valves the water will return directly to the boilers by gravity. Fresh air will be delivered to the class-rooms by a steel-plate plenum fan, directly connected to a steam engine operating at twenty-five pounds pressure. When the engine is running, steam for heating the building will be taken through a reducing pressure valve to the heating system, the maximum pressure being about five pounds. This will be supplemented by the exhaust steam from the engine, which will be utilized after the oil has been removed by passing through a separator. Aspirating coils, placed in the vent flues, will assist in removing the foul air from the rooms.

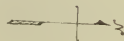
*Boilers.*—Two horizontal return tubular boilers will be installed, of 68 horse power each, 60 inches in diameter, 17 feet 4 inches long, and containing seventy-two 3-inch tubes, 16 feet long.

CITY OF BOSTON SCHOOLHOUSE DEPTMNT  
 PHILLIPS DISTRICT  
**PETER FANEUIL SCHOOL**  
 LOWER ELEMENTARY  
 JAMES T KELLEY HAROLD J GRAVES ARCHITECTS



SYMBOLS  
 + TEACHERS DESK  
 — WAY PUPILS FACE  
 — BLACKBOARD  
 0 3 10 SCALE

FIRST FLOOR PLAN







*Radiation.*—There will be installed 7,526½ square feet of radiation, comprising indirect radiators in the main heating chamber, supplementary radiators at the base of the fresh-air risers, direct radiators in the wardrobes and small rooms, foot warmers in the first floor corridors and coils in the basement play-rooms and sanitariums.

*Engine.*—There will be a 12-inch by 8-inch low pressure side crank engine.

*Fan.*—An 8-foot, three-quarter housing, bottom horizontal discharge steel-plate fan, running at a normal speed of 105 revolutions per minute, will deliver 22,400 cubic feet of fresh air per minute to the class-rooms.

*Temperature Control.*—The class-rooms and assembly hall will be equipped with automatic temperature control. A thermostat placed in the main fresh-air duct and connected to mixing dampers located in the walls of the primary heating chamber will maintain the air in the duct at a constant temperature of 68 degrees Fahrenheit. Each supplementary radiator will be under the control of a thermostat located in the class-room.

*Toilet Ventilation.*—All water-closets in the basement sanitariums will be provided with outlets for seat ventilation, which will be connected together by means of galvanized-iron ducts and run in two separate flues to the top of the main ventilators. Connection will also be made to the space at the back of the urinals. Ventilation will be assisted by aspirating coils placed in the main flues. The individual closets will have similar seat vents.

*Warm Air and Vent Ducts.*—The horizontal fresh-air ducts in the basement will be located below the floor and will be built of concrete. The fresh air and vent risers will be of galvanized iron.

*Electric System.*—The building will be equipped with electric lights, a telephone system for interior communication, a system of electric clocks, controlled by one master clock, a system of program bells, also under control of the master clock, a combined local and auxiliary fire-alarm system, and a projection lantern with reflectoscope attachment for the assembly hall.

**Item 2.**—**Brimmer District**, upper elementary. The plans for this building are now completed. It is a forty-room upper elementary school, located on an irregular lot of land on Ferdinand, Melrose and Fayette streets, and it was difficult so to lay out the building as to make anything in the nature of a symmetrical plan or one that bore any very definite relation to any of the streets on which it fronted. The chief aim that the architect has had in view was so to plan the building as to give a sunny aspect to as many of the forty rooms as possible. The building contains in the basement a manual training room, a cooking-room, toilets for boys and girls, play-rooms, room for nurse, and the heating apparatus.

On the first floor the assembly hall and nine class-rooms, six

of the new standard size to accommodate forty-four, and three of larger size to accommodate fifty. On the floors above the second, which is the same as the first, that is the third and fourth floors, there are these same nine rooms and two additional ones. These two additional rooms on each floor above the second are the only rooms which have not sunlight at some time during the day. The building has four staircases.

Owing to the shape of the lot a compact floor was essential, and the recessed wardrobe, referred to elsewhere as the Chicago type, has been approved here. The clothing is hung in a recessed space at one end of the room, which is closed with accurately balanced sliding doors that lift like a sash. The recess is vented independently of the room.

One room on each floor is to be a fresh-air room, the windows arranged to open out. This is in line with modern thought in regard to children who have been exposed to tuberculosis or who have the slightest tendency in that direction. It will isolate them from others, and give them an opportunity to recover completely when such recovery is still easy.

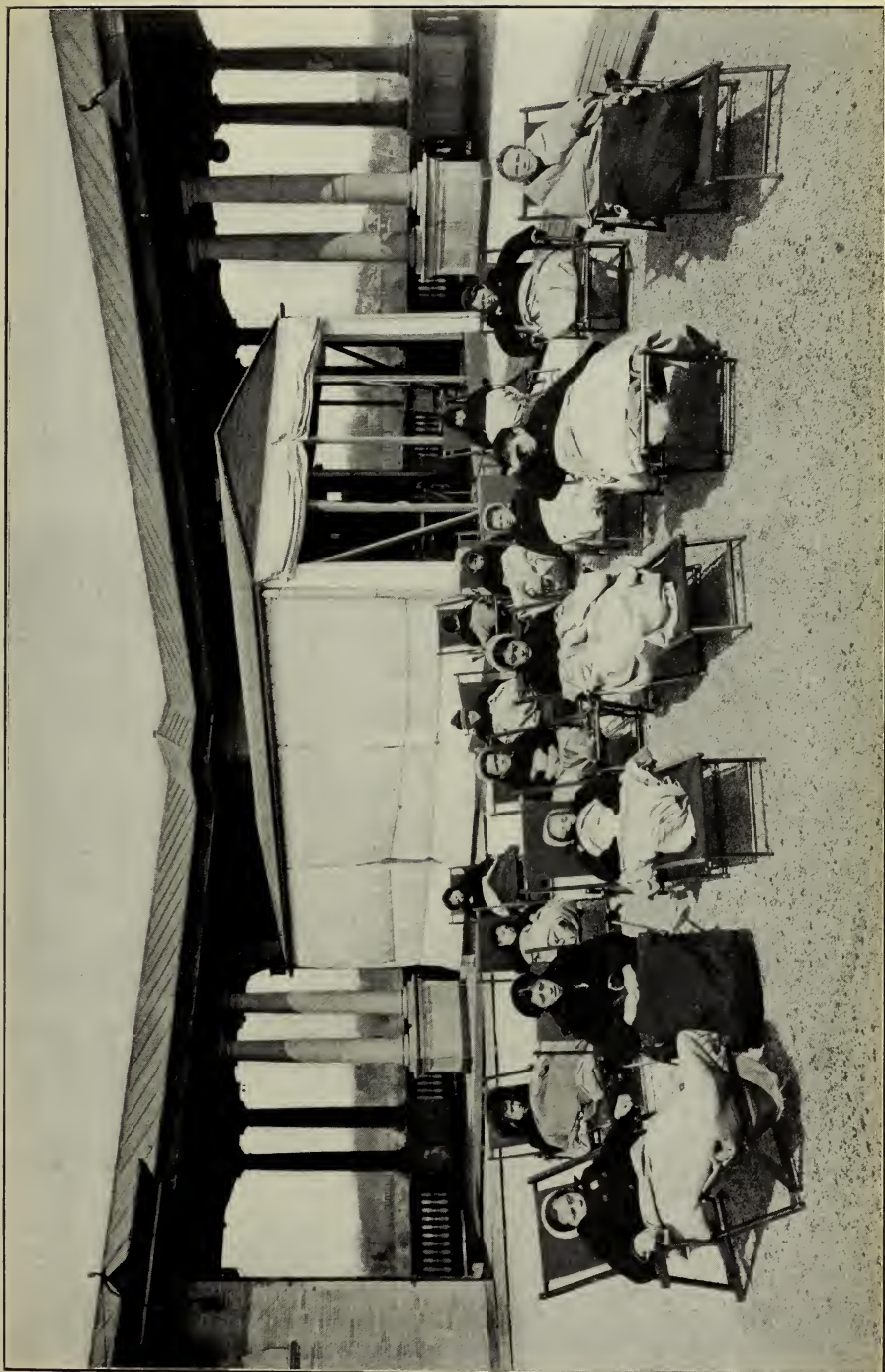
In line with this is the establishment in the so-called Refectory Building at Franklin Park of an open-air school for children who have distinct tuberculosis tendencies. This school was opened in the autumn, and has been carried on through the winter with marked success. Undoubtedly it will lead to the permanent establishment of such a school in the country.

*Heating and Ventilation.*—The steam system is a combination of pump and receiver and gravity return. During the hours when the school is in session the condensation will be returned to the boiler by means of a steam pump. After school hours the fires can be banked, the steam pressure will be dropped and by means of by-pass valves the water will return directly to the boilers by gravity. Fresh air will be delivered to the class-rooms by a steel-plate plenum fan, belted to a steam engine operating at twenty-five pounds pressure. When the engine is running steam for heating the building will be taken through a reducing pressure valve to the heating system, the maximum pressure being about five pounds. This will be supplemented by the exhaust steam from the engine, which will be utilized after the oil has been removed by passing through a separator. Aspirating coils placed in the vent flues will assist in removing the foul air from the rooms.

*Boilers.*—Three horizontal return tubular boilers will be installed, of 98 horse power each, 66 inches in diameter, 18 feet 4 inches long, and containing ninety-eight 3-inch tubes, 17 feet long.

*Radiation.*—There will be installed approximately 15,541 square feet of radiation, comprising indirect radiators in the main heating chamber, wall radiators on the outside walls of the class-rooms, direct radiators in the small rooms, foot warmers in the first floor corridors and coils in the basement play-rooms and sanitariums. Special provision will be made for



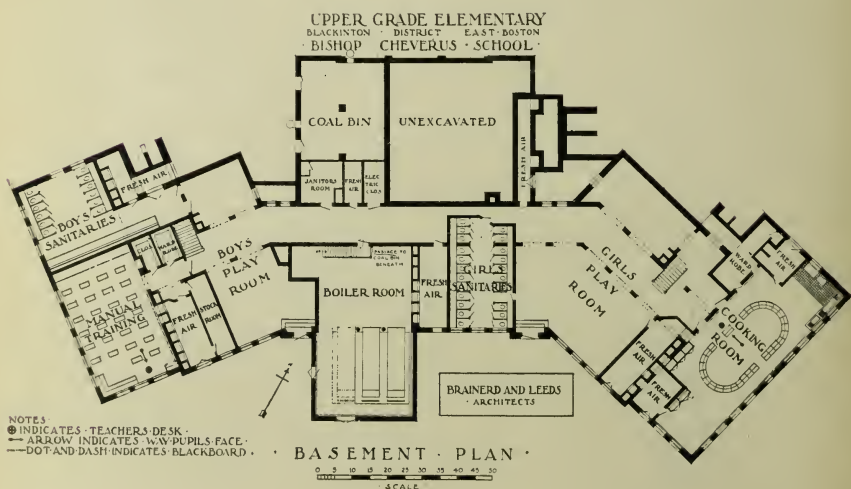
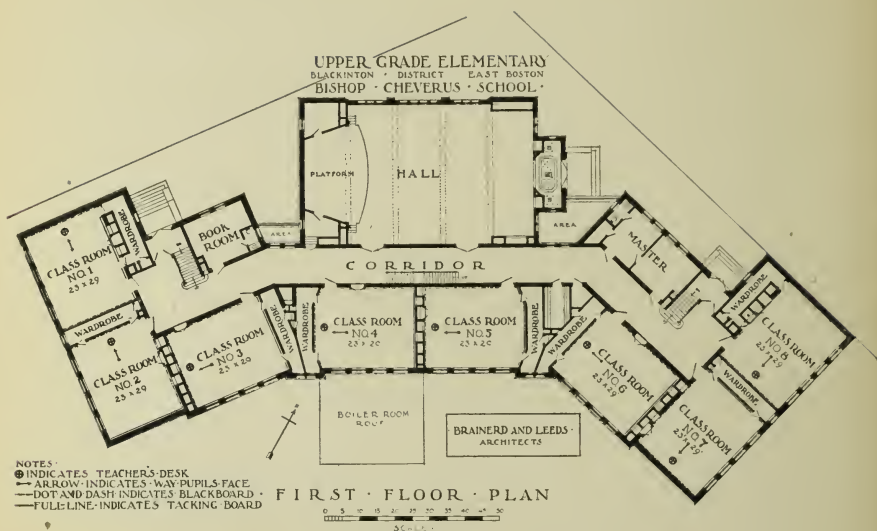


OPEN AIR SCHOOL, REFECTORY BUILDING, FRANKLIN PARK, BOSTON.









ventilating the wardrobes by means of galvanized-iron ducts connecting directly with the class-room vents, openings being left at the foot of the wardrobe doors.

*Engine.*—There will be an 18-inch by 12-inch low pressure center crank engine.

*Fan.*—A 12-foot, three-quarter housing, bottom horizontal discharge steel-plate fan, with special top horizontal discharge outlet, running at a normal speed of 98 revolutions, will deliver 72,000 cubic feet of fresh air per minute to the class-rooms.

*Temperature Control.*—The class-rooms and assembly hall will be equipped with automatic temperature control. A thermostat placed in the main fresh-air duct and connected to mixing dampers located in the walls of the primary heating chamber, will maintain the air in the ducts at a constant temperature of 68 degrees Fahrenheit. The wall radiators in each class-room will be under the control of a thermostat located in the room.

*Toilet Ventilation.*—All water-closets in the basement sanitariums will be provided with outlets for seat ventilation, which will be connected together by means of galvanized-iron ducts and run in two separate flues to the top of the main ventilators. Connection will also be made to the space at the back of the urinals. Ventilation will be assisted by aspirating coils placed in the main flues. Two motor-driven exhaust fans will be installed to supplement the coils. The individual closets will have similar seat vents.

*Warm Air and Vent Ducts.*—The horizontal fresh-air ducts in the basement will be located below the floor and will be built of concrete. The fresh air and vent risers will also be of the same material.

*Electric System.*—The building will be equipped with electric lights, a telephone system for interior communication, a system of electric clocks, controlled by one master clock, a system of program bells, also under control of the master clock, a combined local and auxiliary fire-alarm system, and a projection lantern with reflectoscope attachment for the assembly hall.

**Item 4.**—**The Blackinton District**, elementary school, upper grades. This building is located on land surrounded by four streets in East Boston, and, owing to the fact that it was a large lot, the Board felt justified in trying the experiment of an extended plan, with all the class-rooms on the first or second floor and with the assembly hall on the first floor immediately accessible from the outside without entering the building. The boilers also are located outside the line of the building. The rooms are so arranged as to give sunny exposure for all the class-rooms and, notwithstanding the extended plan, the figures prove that this building is as economical as any of its size and type that has been erected by the Board.

The basement contains the play-rooms, toilet-rooms, manual training room and cooking-room. There are eight class-rooms

and an assembly hall on the first floor and eight class-rooms on the second floor, all of the standard 23 by 29 dimensions, to seat forty-four pupils.

*Heating and Ventilation.—System.* The system for steam in this building will be low pressure, gravity return. The system for air will be gravity. The ventilation will be stimulated by means of aspirating coils placed in the vent flues.

*Boilers.*—There will be two horizontal return tubular boilers of 78 horse power each, 60 inches in diameter and 18 feet 4 inches long, containing seventy-two 3-inch tubes, 17 feet long.

*Radiation.*—There will be a total of 12,241 square feet of radiating surface. Class-rooms will be warmed by indirect pin radiators generally placed in brick heating chambers in the basement. Foot warmers encased in galvanized iron and suspended from the basement ceiling are provided for the first floor corridor. Direct radiators will be placed in the wardrobes, master's and teachers' rooms and also in the basement play-rooms and sanitariums.

*Temperature Control.*—The temperature of the air entering the class-rooms will be controlled by means of hand-mixing dampers operated by the teachers. Fresh air will be supplied to the manual training and cooking rooms in the basement by two 24-inch propeller fans belted to electric motors.

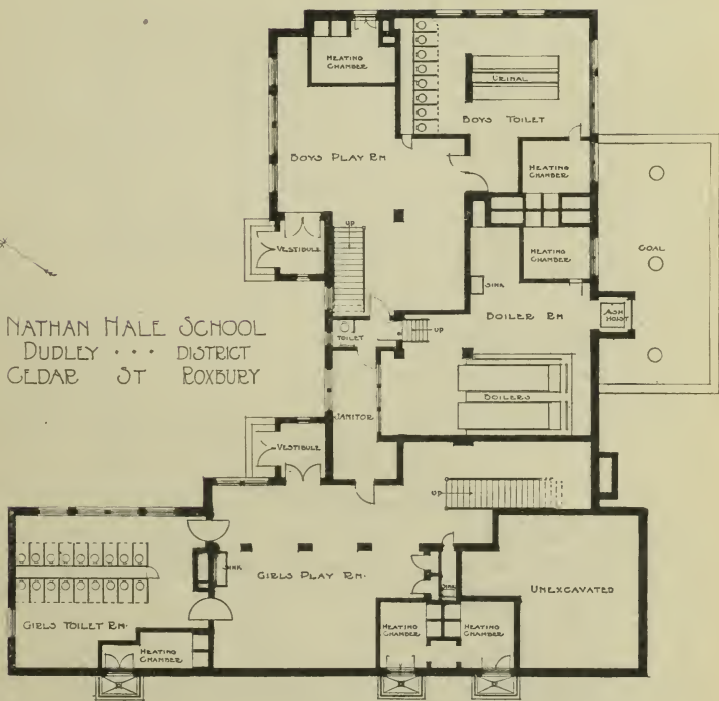
*Toilet Ventilation.*—All water-closets in the basement sanitariums will be provided with outlets for seat ventilation, which will be connected together by means of galvanized-iron ducts and run in two separate flues to the top of the main ventilators. Connection will also be made to the space back of the urinals. Ventilation will be assisted by aspirating coils placed in the main flues. The individual closets have similar seat vents.

*Warm Air and Vent Flues.*—These will be built of brick instead of galvanized iron as has been the former practice.

*Electric System.*—The building will be equipped with electric lights, a telephone system for interior communication, a system of electric clocks, controlled by one master clock, a system of program bells, also under control of the master clock, a combined local and auxiliary fire-alarm system, and a projection lantern with reflectoscope attachment for the assembly hall.

**Item 5.—The Dudley District, elementary school, lower grades.** This building is located on a lot of land on Cedar street. The old house which stood on this land occupied a commanding site on the top of a ledge of Roxbury conglomerate. The formation of the land and the grades were such as to suggest an L-shaped building with the class-rooms mostly on the outer perimeter. The first floor practically is at the grade of the top of the ledge, with the entrances and the playground on the inside of the L at the lower grade. This plan has worked out satisfactorily, and, notwithstanding the blasting necessary, the figures have shown that the building is an economical one. The basement contains the play-rooms, toilets and heating apparatus and

NATHAN HALE SCHOOL  
DUDLEY . . . DISTRICT  
GLDAR ST ROXBURY

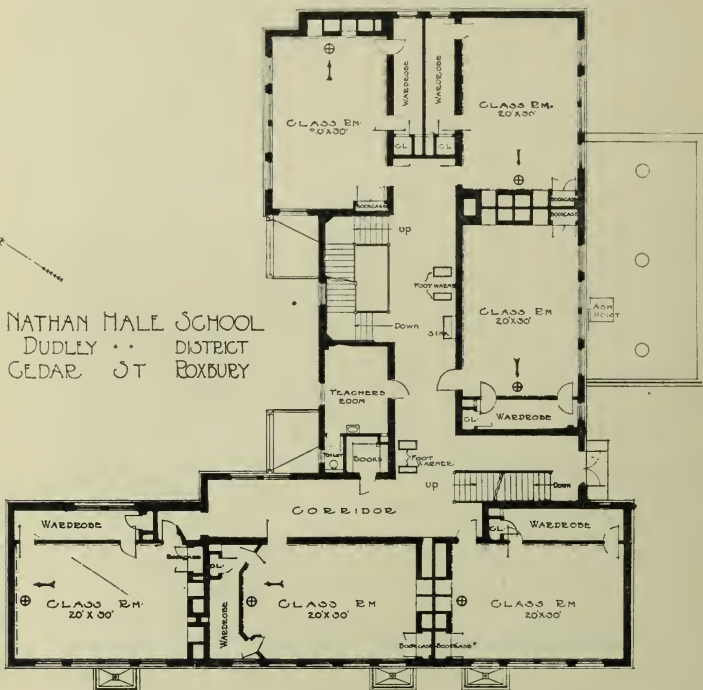


PARKER THOMAS AND EICE  
ARCHITECTS  
BOSTON AND BALTIMORE

BASMENT PLAN  
SCALE  $\frac{1}{8}" = 1'-0"$



NATHAN MALE SCHOOL  
DUDLEY DISTRICT  
CEDAR ST ROXBURY



NOTES  
⊕ INDICATES TEACHER'S DOOR  
—WAGON INDICATES WAY PUPILS FACE  
—DASH AND DASH INDICATES PLACARD

PARKER, THOMAS AND RICE  
ARCHITECTS  
BOSTON AND BALTIMORE

FIRST FLOOR PLAN  
SCALE  $\frac{1}{8}$  IN. = 1'-0"

there are five rooms on the first and five on the second floor, all of the standard 23 by 29 dimension, for forty-four pupils.

*Heating and Ventilation.—System.* The system for steam in this building will be low pressure, gravity return. The system for air will be gravity. The ventilation will be stimulated by means of aspirating coils placed in the vent flues.

*Boilers.*—There will be two horizontal return tubular boilers of 51 horse power each, 54 inches in diameter and 15 feet 3 inches long, containing sixty 3-inch tubes, 14 feet long.

*Radiation.*—There will be a total of 6,665 $\frac{1}{3}$  square feet of radiating surface. Class-rooms will be warmed by indirect pin radiators, generally placed in brick heating chambers in the basement. Foot warmers, encased in galvanized iron and suspended from the basement ceiling, are provided for the first floor corridor. Direct radiators will be placed in the wardrobes, master's and teacher's rooms, and also in the basement play-rooms and sanitariums.

*Temperature Control.*—The temperature of the air entering the class-rooms will be controlled by means of hand-mixing dampers operated by the teachers.

*Toilet Ventilation.*—All water-closets in the basement sanitariums will be provided with outlets for seat ventilation, which will be connected together by means of galvanized-iron ducts and run in two separate flues to the top of the main ventilators. Connections will also be made to the space back of the urinals. Ventilation will be assisted by aspirating coils placed in the main flues. The individual closets have similar seat vents.

*Warm Air and Vent Flues.*—These will be built of brick instead of galvanized iron, as has been the former practice.

*Electric System.*—The building will be equipped with electric lights, a telephone system for interior communication, a system of electric clocks, controlled by one master clock, a system of program bells, also under control of the master clock, and a combined local and auxiliary fire-alarm system.

**Item 6.—The addition to the Dorchester High School.** This building was laid out originally for twelve class-rooms and six smaller rooms for recitation rooms. It was then increased in accommodation by making the six small rooms the same size as the others.

It is located on land immediately adjoining the present Dorchester High School lot, and will be connected with the original building by a corridor on the first floor and a similar connection in the basement. The building contains in the basement the toilets for boys and girls and the wardrobes. As the heat is supplied from the boiler plant of the old building, all the remainder of the basement is available for high school handicraft work, which includes drawing, metal and wood-working. Advantage has been taken of the slope of the land so that the rooms used for this purpose are above grade. Each floor above the basement contains six standard high school

class-rooms to accommodate thirty-six pupils each, eighteen rooms in all. Two of the rooms, however, are connected for use in connection with the commercial work of this school.

*Heating and Ventilation.*—The steam system is a combination of pump and receiver and gravity return, and will be so arranged as to operate in conjunction with the present heating apparatus. During the hours when the school is in session condensation will be returned to the boilers by means of the present steam pumps. After school hours the fires can be banked, the steam pressure will be dropped and by means of by-pass valves the water will return directly to the boilers by gravity. Fresh air will be delivered to the class-rooms by a steel-plate plenum fan belted to a steam engine operating at 25 pounds pressure. When the engine is running, steam for heating the building will be taken through a reducing pressure valve to the heating system, the maximum pressure being about five pounds. This will be supplemented by the exhaust steam from the engine, which will be utilized after the oil has been removed by passing through a separator. Aspirating coils placed in vent flues will assist in removing the foul air from the rooms.

*Boilers.*—One horizontal tubular boiler will be installed of 122 horse power, 72 inches in diameter, 19 feet 4 inches long, and containing one hundred and twenty-two 3-inch tubes, 18 feet long. There will be installed 7,447 square feet of radiation, comprising indirect radiators in the main heating chamber, wall radiators on the outside of the class-rooms, direct radiators in the small rooms, foot warmers in the first floor corridors and coils in the basement dressing-rooms and sanitariums.

*Engine.*—There will be a 12-inch by 8-inch low pressure centre crank engine.

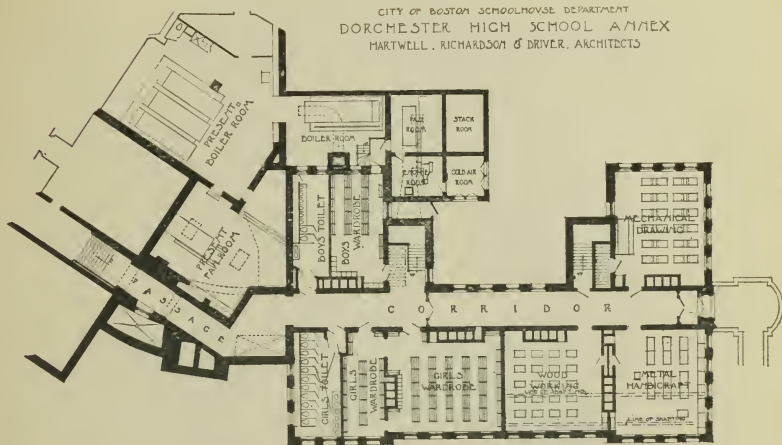
*Fan.*—An 8-foot, three-quarter housing, bottom horizontal discharge steel-plate fan, running at a normal speed of 125 revolutions per minute, will deliver 72,000 cubic feet of fresh air per minute to the class-rooms.

*Temperature Control.*—The class-rooms will be equipped with automatic temperature control. A thermostat placed in the main fresh air duct and connected to mixing dampers located in the walls of the primary heating chamber will maintain the air in the ducts at a constant temperature of 68 degrees Fahrenheit. The wall radiators in each class-room are to be under the control of a thermostat located in the room.

*Toilet Ventilation.*—All water-closets in the basement sanitariums will be provided with outlets for seat ventilation, which will be connected together by means of galvanized-iron ducts, and run in two separate flues to the top of the main ventilators. Connection will also be made to the space at the back of the urinals. Ventilation will be assisted by aspirating coils placed in the main flues. The individual closets have similar seat vents.

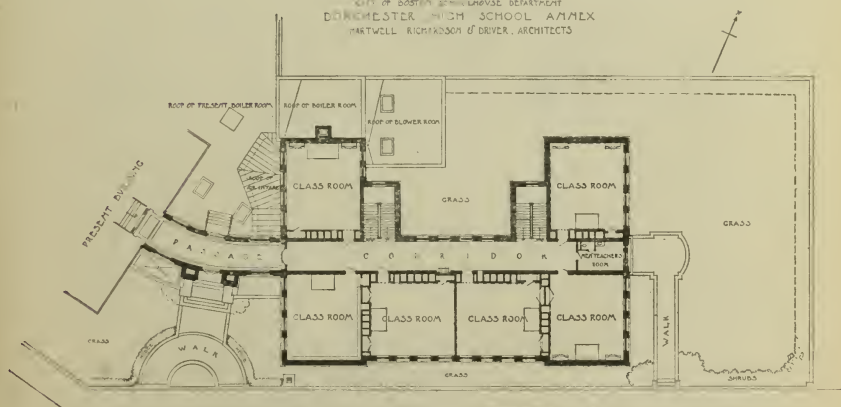
*Warm Air and Vent Ducts.*—The horizontal fresh-air ducts

CITY OF BOSTON SCHOOLHOUSE DEPARTMENT  
DORCHESTER HIGH SCHOOL ANNEX  
HARTWELL, RICHARDSON & DRIVER, ARCHITECTS



BASEMENT FLOOR PLAN

CITY OF BOSTON SCHOOLHOUSE DEPARTMENT  
DORCHESTER HIGH SCHOOL ANNEX  
HARTWELL, RICHARDSON & DRIVER, ARCHITECTS

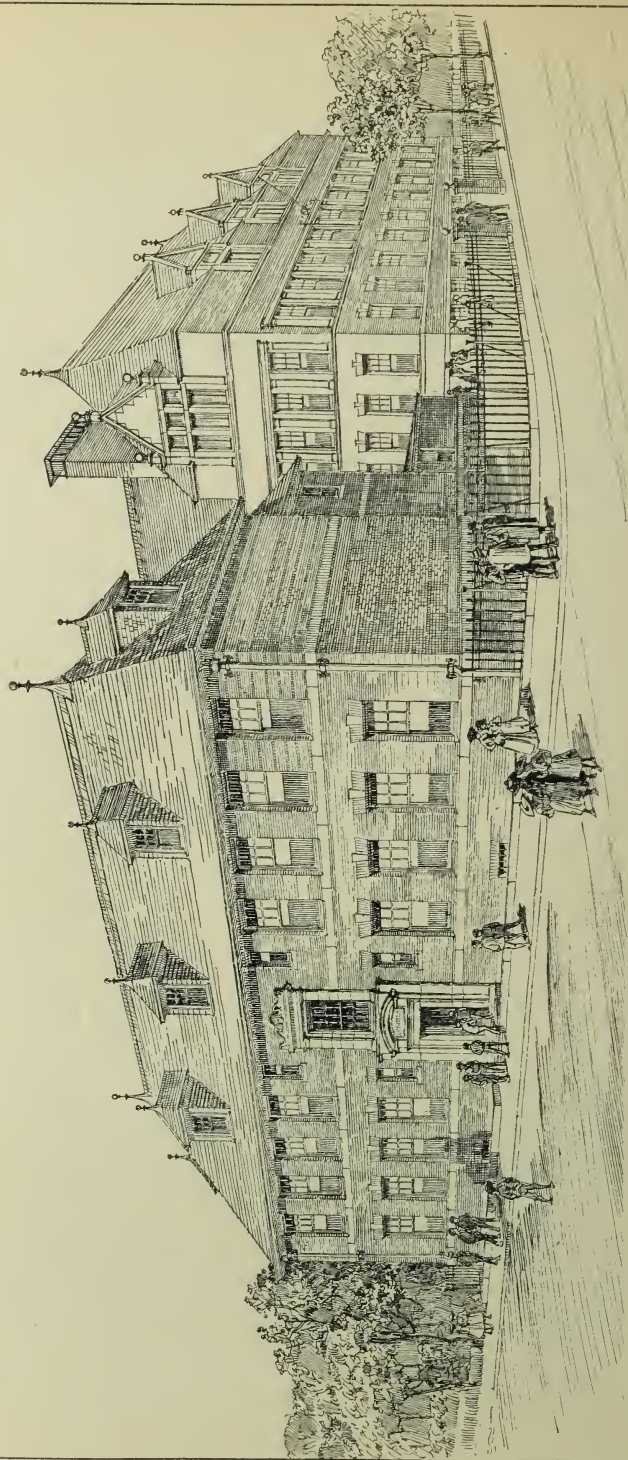


FIRST FLOOR PLAN



LONGFELLOW-SCHOOL-EXTENSION  
ROSLINDALE - MASS.

C-HOWARD-WALKER-ARCHITECT



VIEW FROM CORNER OF FARQUHAR AND SOUTH STREETS  
EXTENSION, LONGFELLOW SCHOOL, SOUTH AND HEWLETT STREETS, ROSLINDALE.  
C. HOWARD WALKER, Architect.

in the basement will be located below the floor and will be built of concrete. The fresh air and vent risers will be of terra cotta.

*Electric System.*—The building will be equipped with electric lights, a telephone system for interior communication, a system of electric clocks, controlled by one master clock, a system of program bells, also under the control of the master clock, a combined local and auxiliary fire-alarm system, and motors for operating the machines in the Manual Training Department.

**Item 7.**—The addition to the Longfellow School, to be built upon land previously bought by this department, adjacent to the present Longfellow lot. This land is lower than the old lot, and, as we need no basement for heat, the plant being in the old building, the Board has been able to plan for a building of but two stories, having four class-rooms on the ground floor and four class-rooms on the first floor. Additional toilet accommodation for boys and girls is on the ground floor and a large teachers' room for the accommodation of the whole building is on the second floor. In the space under the pitched roof there is ample opportunity for installing in the future a cooking room when it is necessary in the district, and supplies and wastes are included so as to make the installation simple.

*Heating and Ventilation.*—The steam system is a combination of pump and receiver and gravity return, and will be so arranged as to operate in conjunction with the present heating apparatus. During the hours when the school is in session condensation will be returned to the boilers by the steam pumps. After school hours the fires can be banked, the steam pressure will be dropped and by means of by-pass valves the water will return directly to the boilers by gravity. Fresh air will be delivered to the class-rooms by a steel-plate plenum fan belted to a steam engine operating at 25 pounds pressure. When the engine is running, steam for heating the building will be taken through a reducing pressure valve to the heating system, the maximum pressure being about five pounds. This will be supplemented by the exhaust steam from the engine, which will be utilized after the oil has been removed, by passing through a separator. Aspirating coils placed in vent flues will assist in removing the foul air from the rooms.

*Boilers.*—One new horizontal tumbler boiler will be installed of 40 horse power, 48 inches in diameter, 15 feet 4 inches long, and containing fifty 3-inch tubes, 14 feet long. There will be installed 3,602 square feet of radiation, comprising indirect radiators in the main heating chamber, supplementary radiators at the base of the heat ducts to the first floor class-rooms, wall radiators on the outside walls of the second floor class-rooms, direct radiators in the corridors, wardrobes and small rooms, and coils in the sanitariums.

*Engine.*—There will be a 10-inch by 6-inch vertical low pressure engine.

*Fan.*—A 5½-foot, three-quarter housing, bottom horizontal

discharge steel-plate fan, running at a normal speed of 184 revolutions per minute, will deliver 14,050 cubic feet of fresh air per minute to the class-rooms.

*Temperature Control.*— The class-rooms will be equipped with automatic temperature control. A thermostat placed in the main fresh-air duct and connected to mixing dampers located in the walls of the primary heating chamber will maintain the air in the ducts at a constant temperature of 68 degrees Fahrenheit. The wall radiators or supplementary radiators in each class-room are to be under the control of a thermostat located in the room.

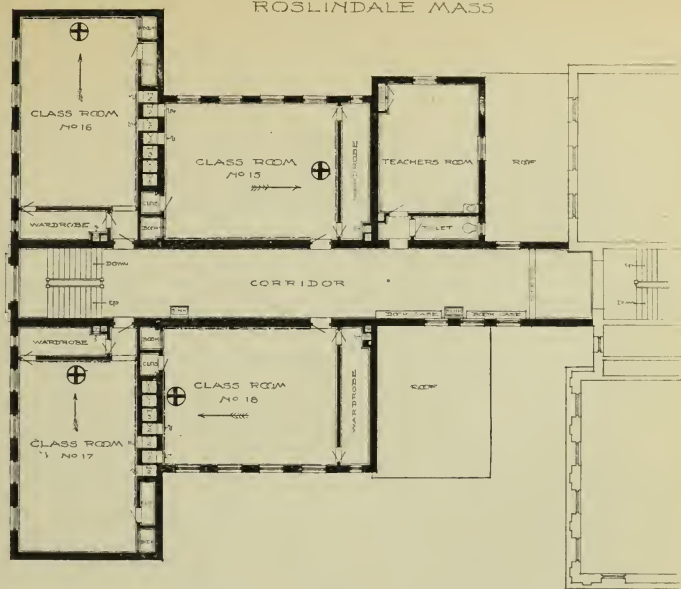
*Toilet Ventilation.*— All water-closets in the basement sanitariums will be provided with outlets for seat ventilation, which will be connected together by means of galvanized-iron ducts and run in two separate flues to the top of the main ventilators. Connection will also be made to the space at the back of the urinals. Ventilation will be assisted by aspirating coils placed in the main flues. The individual closets will have similar seat vents.

*Warm Air and Vent Ducts.*— The horizontal fresh-air ducts in the basement will be located below the floor and will be built of concrete. The fresh air and vent risers will be of brick.

*Electric System.*— The building will be equipped with electric lights, program bells and fire-alarm system. Conduits will also be installed for the future installation of a system of electric clocks and telephones.



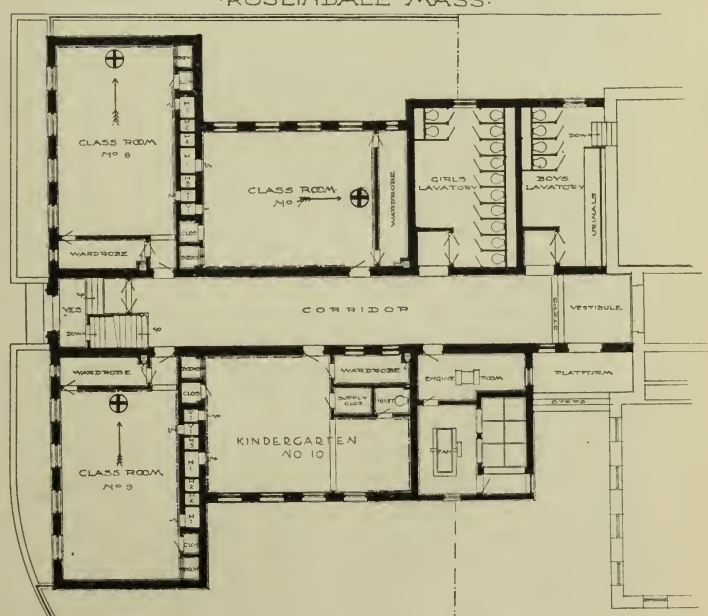
# LONGFELLOW SCHOOL ROSLINDALE MASS.



SECOND FLOOR PLAN  
SCALE

- NOTES:  
 ⊕ INDICATES TEACHER'S DESK  
 → ARROW INDICATES WAY PUPILS FACE  
 -·-·- DOT AND DASH INDICATES BLACKBOARD

# LONGFELLOW SCHOOL ROSLINDALE MASS.



FIRST FLOOR PLAN  
SCALE

- NOTES:  
 ⊕ INDICATES TEACHER'S DESK  
 → ARROW INDICATES WAY PUPILS FACE  
 -·-·- DOT AND DASH INDICATES BLACKBOARD





## APPENDIX VII.

GENERAL INFORMATION FOR FIRST CLASS  
CONSTRUCTION.

## ELEMENTARY SCHOOLS.

SCHOOL-ROOMS. (1.) *Size* will be 23 by 29 for elementary grades and not less than 12 feet in clear. Modification allowable only after consultation with the Board. A building having no grades above IV., with no desk larger than 21 inches, might have rooms 22 by 28, but the standard size gives the extra space wanted for modern methods. Desks should be laid out on the preliminary plans. (See drawing.) This drawing should give 18-inch, 21-inch and 23-inch desks, laid out in a 23 by 29 room. Every class-room shall be consecutively numbered on the plans to designate it. These numbers to be for the doors, as noted below, and for the annunciator. Other rooms that appear on the annunciator to be named on the plans, as assembly hall, teachers' or master's room, cooking-room, manual training room. The Kindergarten shall be counted as a class-room. In high schools, both class and recitation rooms to be numbered, other rooms named.

(2.) *Windows* will be on the long side for left hand lighting. The glass measured inside the sash shall contain not less than  $\frac{1}{3}$  of floor area, about 135 square feet for a room 23 feet wide; \* neither double run of sash nor double glazing will be required, but a dust-proof metal weather strip; the head square and close to the ceiling; the sill about 2 feet 6 inches from the floor; the windows divided with muntins, no large sheets of glass. Finished with plastered jamb, no architrave, metal corner bead.

\* It is evident that if this area of glass is requisite to light a room in a building with free space about it, such for example as the Sarah J. Baker School, it is inadequate for a room in a building situated like the Christopher Columbus, on a narrow street. Under exceptionally free conditions, with no obstructions to the direct light from the sky, it is possible that the area of glass might be reduced, but it appears to be no more than enough for the ordinary conditions of the new buildings, and should be increased, if possible, for such situations as that of the Columbus.

(3.) *Doors*.—One to corridor, 3 feet 6 inches by 7 feet, partly glazed, to open out, placed preferably near the teacher's end; brass-plated steel butts, 3-lever mortise lock, master-keyed; cast-brass knobs, marble thresholds to corridors. Doors to have 2-inch plain brass numbers, and cardholders  $3\frac{1}{2}$  inches by 5 inches, and hooks to hold open.

(4.) *Floors* will be Georgia pine rift, or maple.

(5.) *Walls* will be painted burlap up to top of blackboards, or of tack boards, and above this plaster, tinted in water color—a warm gray green or buff gives the best results—the blackboards 4 feet high, 2 feet 2 inches from floor in kindergarten, 2 feet 4 inches to 2 feet 6 inches to Grade IV., and 2 feet 8 inches in Grades V. to VIII. Behind the teacher and on the long side. These will be of best black slate,  $\frac{1}{4}$  inch thick. At end, in place of blackboard, pine sheathing with burlap stretched over it for a tack board, to extend from base to the moulding at top of blackboards. In lower grades a rack or tack board for holding cards is required above the blackboard. A picture moulding at top of burlap and also near ceiling in all rooms. (See drawings.)

(6.) *Ceilings* will be level, plaster, tinted a light cream color.

(7.) *Lights*.—Nine chain pendant electric fixtures on three switches. No gas.

(8.) *Heating and Ventilation*.—The inlet for heat about 5 square feet, the outlet for ventilation about 5 square feet.

(9.) *Bookcase*.—Provide a bookcase in any convenient position, capable of containing 300 octavo volumes; (600 volumes in bookcases for upper grades); upper doors fitted with pin tumbler locks, and latch and knob; drawers fitted with pin tumbler lock and small brass knobs. Lower doors to have pin tumbler locks; same lock in each bookcase; all bookcase locks master keyed. (See drawing.) Special equipment for care of books where school is held day and evening is described on page 20—Report, 1908.

(10.) *Map Supports*.—Provide one map support for each class-room in Grades IV., V., VI., VII., and VIII., preferably behind the teacher's desk or opposite the windows. (See drawing.)

(11.) *Teacher's Closet*.—Provide a small closet for teacher's coat and hat, preferably opening from the class-room, but allowable from the wardrobe.

WARDROBES. A (1.) *Size*.—Wardrobes will adjoin school-rooms and be from 4 feet 6 inches to 5 feet wide.

(2 and 3.) *Windows and Doors*.—Outside light, two doors, both connecting with school-room and not to corridor, and having no thresholds. Doors, double swung, 2 feet 6 inches wide, brass double acting butts, foot and hand plates, hooks or adjustable stops to hold open, ventilation under door farthest from vent.

(4.) *Floors* as in corridors, terazzo.

(5.) *Walls*.—Painted burlap up to hook rail; poles on brass-plated iron brackets with hooks under and pins over, 44 in number. Shoe rack and umbrella clip below. (See drawing.) Walls above, plaster, tinted. Height of lower pole, kindergarten, 30 inches from floor; lower grades, 36 inches to 40 inches; upper grades, 44 inches, 48 inches and 52 inches; distance between poles, 8 inches for elementary, 12 inches for high schools. Pins and hooks, 8 inches to 12 inches on centres for elementary and 16 inches to 18 inches for high.

(6.) *Ceiling*.—Plaster, tinted in water-color, light cream.

(7.) *Light*.—One lamp. Ceiling outlets, electric. Switch in class-room.

(8.) *Heating and Ventilation*.—Heating, direct. Ventilation, direct,  $1\frac{3}{4}$  square feet area cross section.

WARDROBES. B The so-called Chicago type has been studied in a model for one building, but has not yet been tested in practice. It is a recess 20 inches deep and about 14 feet long, equipped with the standard pole and 44 hooks. The floor is of terazzo, the ceiling is at about 7 feet above the floor. The doors are hung like sash to slide up, are framed flush and covered with burlap for a tack-board. The ventilator is independent of the room vent, but there is no heat except what is drawn in from the room at the bottom.



CORRIDORS AND  
VESTIBULES.

(1.) *Size*.—Not less than 8 feet wide for four rooms on a floor; not less than 10 feet for over four rooms, governed by length, access to stairs, etc.

(2.) *Windows*.—Outside light essential.

(3.) *Doors*.—Main outer doors to open out, heavy butts, standard, master keyed, school lock; door check; heavy hooks to hold open. Vestibule doors open out, heavy butts, bulls, push plates, hooks to hold open, door checks, no locks. Outer doors to basement open out, and fitted with standard latch lock. Other hardware as above.

(4.) *Floors*.—Terazzo or granolithic, or linoleum glued on a cement surface.

(5 and 6.) *Walls and Ceilings*.—Painted burlap, 7 feet high, or a light glazed brick, untinted walls and ceilings. Finish burlap with a dado cap, and put picture moulding at ceiling in corridors.

(7.) *Light*.—Ceiling or short pendant fixtures (electric) 32 candle-power each, also gas for emergency in corridors, on stairs and in vestibules.

(8.) *Heating and Ventilation*.—Heat, direct, supplemented by foot warmers on first floor. Ventilation where possible.

(9.) *Sinks and Closets*.—On each floor above the first one or two 4-foot sinks, and emergency closets, with water-closet and bowl, with hot and cold water, one for boys and one for girls.

## STAIRCASES.

(1.) *Number and Arrangement*.—Determined by the Board, but fireproof construction in all cases, and not over five feet wide.

(2.) *Material*.—The treads, North River stone on iron string, or concrete construction with granolithic surface. Rails of a simple pattern, easily cleaned; wall rails not necessary.\*

(3.) *Steps*.—About  $6\frac{1}{2}$  or 7 inches by 10. Rail not less than 2 feet 8 inches on runs and 3 feet on landings.

## SANITARIES.

(1.) *Size*.—General toilet-rooms in basement, in size approximating space for 2.25 water-closets for each school-room, .75 boys, 1.5 girls, and 33 inches of urinal for every school-room, arranged for convenient super-

\* In many schools the children are required to file in the centre of the stairs and to keep away from the walls. Where this is the rule a rail on the wall appears needless.

vision and circulation.\* Slate sinks, length from 10 inches per class-room in small buildings to 6 inches per class-room in large buildings, located preferably in the play-rooms. The above refers to mixed schools.

(2.) *Windows*.—Ample outside light; glazed where exposed to view outside with factory ribbed glass.

(3.) *Doors*.—The doors arranged "in" and "out," with spring or door check and stout brass hooks to hold open; glazed with ribbed glass; half doors to water-closets except where ordered omitted.

(4.) *Floors*.—Asphalt. Boys' drained to urinal, girls' to floor wash.

(5.) *Walls*.—Salt-glazed brick, or other nonporous, inexpensive surface, 7 feet high; above, brick painted.

(6.) *Ceiling*.—Untinted plaster or white-washed concrete. No basement ceiling need be furred level

(7.) *Light*.—Ceiling or short pendant electric fixtures.

(8.) *Heat and Ventilation*.—Heat direct. Ventilation through water-closets and space back of urinals, allow 10 square inches local vent for each water-closet and 8 square inches for each lineal foot of urinal.

#### MASTERS'S AND TEACHERS' ROOMS.

(1.) In each school of the upper grades a room of about 240 square feet for the master, with a water-closet and bowl and a book-closet adjoining. This room should be near the centre of the building, *i.e.*, on the second floor in a three story building. In all schools a room or rooms for teachers, averaging about 300 square feet for ten teachers, with one water-closet and bowl for each ten.

(2.) Where men as well as women are teachers, a separate room with toilet accommodations for men.

(3.) Opportunity in teachers' rooms for warming luncheon, either gas or electric.

#### PLAY-ROOMS.

(1.) All free basement space to be arranged as play-rooms for boys and girls. Salt-glazed brick, 7 feet high, and painted or whitewashed brick or stone walls above. Granolithic floors drained to floor washes, plaster ceilings or whitewashed concrete.

\* Inquiries have been addressed to principals of all schools where water-closets and urinals have been installed on this basis, and the consensus of opinion appears to be that the number cannot be reduced without inconvenience, but that it is satisfactory as it stands.

PLUMBING FIX-  
TURES.

(1.) *Water-closets*.—The basement water-closets for elementary schools are short hopper closets; elsewhere, a heavy washdown closet, (See drawing.)

(2.) *Slate partitions*.—Any sound, close-grained slate, black, green or purple, supported at ends with iron pipe about 8 feet high, tied together and to the wall, to which doors are hung. (See drawing.)

(3.) *Urinals*.—The urinals will be of slate, floor slab, trough and back, without partitions,\* flushed automatically, through  $\frac{7}{8}$ -inch perforated pipe, with cold water; vented at bottom into space behind. (See drawing.)

(4.) *Sinks* of black slate, self-closing cocks, set 15 inches on centres, and cup-hooks at each side of cocks, and jet drinking fountains in the external angles.

(5.) *Floor Washes* in sanitariums and play-rooms as already mentioned. (See drawing.)

(6.) *Piping*.—(a.) Cast iron must be laid on good footing in basement, cleanouts at every change of direction. Soils and vents exposed as far as possible, no asphaltum, but oil-tested, red lead and three coats of paint.

(b.) *Supplies*.—Exposed as far as possible; where covered may be plain brass, elsewhere polished brass; no nickel-plate. Hot water for janitor's use in basement, cooking-room, and for master's and teachers' rooms and emergency toilets. Supply from boiler and from summer boiler, if any, or from an independent hot-water heater.

(c.) *Fire Lines*.—In buildings over three stories high, one or more lines of 3-inch pipe if requested by the Board.

## SPECIAL ROOMS.

ASSEMBLY  
HALLS.

(1.) Assembly halls should accommodate from 400 to 800. It is not considered necessary to seat the full number of pupils in schools of greater capacity. The floor to be level and of wood like class-rooms. The windows to be fitted with rebated mouldings to take black shades, and so designed as to make the operation of shades practical and simple. The platform should be capable of accommodating one, or in the large schools, two classes and should have removable stepped platforms of

\* The Board is considering and experimenting with a partition to give partial privacy, and yet avoid the difficulties with the partition that goes to the floor.

MANUAL  
TRAINING  
ROOMS.

wood to take the benches. Galleries may be used where the hall is two stories in height. Anterooms near the platform are desirable, and a connection from adjoining class-rooms to the anterooms or directly to the platform. A dignified architectural treatment of the walls and a studied color scheme for walls and ceiling is expected. The lighting, acoustics and exits should be such as belong to a small lecture hall. Artificial lighting to be under control from at least two points, one of which must be near an exit. Electric outlet for 30 ampere projection lantern, 25 feet from curtain. Provide recess in ceiling over platform for spring rolled curtain 13 feet long.

(1.) *Size*.—Room, generally located in basement, should be approximately 900–1,000 square feet, preferably a corner room; and arrangement, shown by drawing, for number of benches there given 28.

(2.) *Light*.—The windows should be as near full length as possible, and on two sides. Artificial light in chain pendant electric fixtures, one light to every four benches.

(3.) *Floors*.—Of wood.

(4.) *Walls*.—A basement room should be finished as a shop; salt-glazed brick up to 7 feet where exposed, and above blackboard space of about 15 running feet, 4 feet high, and above this brick walls whitewashed. If above basement, finished as a class-room.

(5.) *Ceilings*.—Like basement.

(6.) *Heating and Ventilation*.—The same as in class-rooms.

(7.) *Fittings*.—(a.) *Stock-room*.—Stock-room should contain at least 80 square feet, preferably long and narrow. Eighteen-inch shelves should run around the room, 5 feet 6 inches and 6 feet from the floor.

(b.) *Wardrobes*.—Wall space for 30 double coat and hat hooks, in a separate room.

(c.) *Teachers' Closet*.—Teachers' closet should be large enough to be used also for storage of finished work, and should be fitted with all shelving possible as well as with the customary coat hooks. An area of 40 square feet is adequate.

(d.) *Bookcases*.—Like those in class-rooms, 150 capacity.

(e.) *Work-rack*.—About 28 feet long, 6 feet 6 inches high, and 2 feet deep. The length



is to take 27 compartments (equalling the number of benches) and the height the number of divisions that use the room (two each day, five days, outside limit). (For all of these see drawings.)

(f.) *Sink*.—A 3-foot porcelain enameled iron sink, with hot and cold water.

(g.) *Furniture*.—(Not included in the building contract.) The furniture comprises 28 benches and stools, 4 display frames about 6 feet long and 30 inches wide, demonstration steps and guard rail, teacher's desk, table 4 feet by 2½ feet with unfinished top, one desk chair and two common chairs. (See drawing. Lay these out on preliminary drawings.)

#### COOKING-ROOM.

(1.) *Size*.—Should have an area of 900–1,000 square feet, preferably a corner room on top floor but generally in basement, and arranged for 28 stations.

(2.) *Light*.—Windows as in a class-room, if located in a corner, from two sides. Artificial light as in a class-room.

(3.) *Walls*.—Above basement, similar to school-rooms, blackboards, 4 by 10 feet, back of teacher's desk. Walls painted in oils. A basement room may have salt-glazed brick walls up to 7 feet and painted brick above. (See drawings.)

(4.) *Floors*.—The floor linoleum, on cement, except space occupied by ranges, which is tiled.

(5.) *Ceilings*.—Ceilings like basement, or if above basement like class-rooms.

(6.) *Heat and Ventilation*.—Less heat is required than in a class-room, but the ventilation should be the same, with additional vent from the demonstration ranges.

(7.) *Fittings*.—(a.) *Wardrobes*.—Provision for 28 pupils, double coat and hat hooks in separate lighted closet, and small teacher's closet.

(b.) *Work benches*, accommodating 28 pupils, fitted with compartment for utensils, bread-board, etc., a Bunsen burner with a hinged iron grill over it, set on aluminum plates at each station; benches arranged in the form of ellipse, or oblong, with access to centre from two sides; top of pine 26 inches wide; open underneath and supported on pipe standards. One section detached and fitted as a demonstration bench; a clear space of 4 feet all around. Dining table (furnished under another

contract) is to be set in centre. (See drawings. Lay these out on preliminary drawings and include in final drawings and contract.)

(c.) *Dresser*.—Ten feet long, in 3 sections, 4 adjustable shelves and glazed sliding, or hinged, doors at top; one set of 3 drawers and 2 cupboards on lower part. A shelf should be put in each cupboard about 12 inches from top.

(d.) *Fuel-box*.—In 2 compartments, each about 24 inches square and 30 inches deep, with hinged lids; small shelf in one section. Accommodations in the main coal-room for a supply of range coal and kindling wood.

(e.) *Bookcase*.—Similar to those provided in class-room.

(f.) *Sink*.—Soapstone, 5 feet long; 2 cold and 2 hot-water cocks; soapstone drip shelves 24 inches long at each end of sink, and a small sink about 2 feet long with 1 hot and 1 cold water cock. Sinks should be near ranges.

(g.) *Hot-water Supply*.—(See instructions in plumbing.)

(h.) *Coal and Gas Ranges*.—A six-hole coal range and a similar gas range with hood provided and set on a hearth previously mentioned.

(i.) *Refrigerator*.—Will be a part of the furniture. Furnished under another contract.

#### KINDERGARTEN.

(1.) *Size*.—The rooms can be contained in the space of a class-room and wardrobe, but a slightly larger area, 800 to 900 square feet, is desirable. They comprise a large room, a small room, a supply closet, a wardrobe and a water-closet. The large room should take a 16-foot circle, regulation lines painted on the floor, with at least 4 feet all around it. The small room, about 200 square feet.

(2.) *Light*.—Windows should be as in a class-room, if on a corner, on both sides. Exposure should be sunny. Artificial light of the class-room type, arranged for the different rooms.

(3.) *Doors*.—Door to corridor as in class-rooms. Wide doors should open from small room into large room.

(4.) *Floors*.—Linoleum, cemented on to concrete surface, with painted lines as above.

(5.) *Walls*.—As in class-rooms, with black-board as in lower grades.

(6.) *Ceilings*.—As in class-rooms.

(7.) *Heat and Ventilation*.—As in class-rooms.

(8.) *Fittings*.—(a.) *Wardrobe*.—Hooks for 60, arranged as in ordinary wardrobes.

(b.) *Teachers' Closet*.—For clothing of two or three teachers.

(c.) *Toilet-room*.—Immediately adjoining, with low-down seat and bowl or sink.

(d.) *Bookcase*.—As in lower grades.

#### NURSE'S ROOM.

(1.) *Size*.—From 200 to 400 square feet, according to size of school.

(2.) *Windows*.—Outside light as in class-rooms.

(3.) *Shades*.—Set to roll from window-sill upward. Not in building contract.

(4.) *Doors*.—One door to corridor, as in class-rooms, marked "Nurse's room."

(5.) *Walls*.—Upper two-thirds plaster, smooth finish, round corners, painted with light green oil paint. Lower one-third to floor, glazed white tile.

(6.) *Floor*.—Terazzo, like corridors.

(7.) *Heat and Ventilation*.—As in class-rooms.

(8.) *Light*.—Pendant electrolier with special shade. Extra socket on body of fixture for hand portable.

(9.) *Nurse's Closet for Supplies*.—Size 3 by 4; one shelf; 6 hooks for clothing.

(10.) *Bath Tub*.—Five-foot porcelain enamelled iron, hot and cold water, where requested by Superintendent of Nurses.

(11.) *Bowl*.—Porcelain, hot and cold water faucets to turn by foot pressure, *i.e.*, hospital pattern. Hot water must be available all the year.

(12.) *Stove and Clock*.—Gas or electric heater as in teachers' rooms, and a secondary clock.

(13.) *Fittings*.—(Not in building contract.)

(a.) *Cabinet*.—Oak finish, medical cabinet, adopted as standard by Schoolhouse Commission.

(b.) *Stool*.—White enamel revolving stool. (Not in building contract.)

(c.) *Table*.—Dressing table, white enamel frame, glass top and shelf. Size 16 by 20, rubber crutch tips.

(d.) *Filing Case for Nurse's Records*.—Oak finish, to hold 1,000 cards, 4 by 6; lock and key; guide cards.

(e.) *Writing Table*.—Oak finish with drawer and lock; size, 20 by 30.

(f.) *Chair*.—Oak, to match table. (g.) *Couch*.—Flat frame oak, canvas adjustable top. (h.) *Mirror*.—Size  $2\frac{1}{2}$  by 3, set over bowl.

## HIGH SCHOOLS.

CLASS-ROOMS  
AND RECITA-  
TION-ROOMS.

(1.) High school class-rooms are laid out for classes of thirty-six or forty-two, generally the latter. A room, 26 feet by 32 feet, will accommodate forty-two high school desks. The larger class-rooms are to accommodate from sixty to eighty pupils; the larger number can be accommodated in a room 33 feet 8 inches by 43 feet. Recitation-rooms, which to a certain extent will be used also as class-rooms, should be about 16 by 26. These rooms, if equipped with continuous desks and seats as in a lecture-room, or with double desks, such as are to be used in the Charlestown High, would accommodate about thirty pupils each. Lay out desks in one room of each type on preliminary plans.

## ASSEMBLY HALL.

(1.) For a high school would not differ materially from that already described for elementary schools.

MASTERS' AND  
TEACHERS'  
ROOMS.

(1.) For accommodation of the principal there should be an outer office, that is, a waiting-room or reception-room, and an inner office; and rooms for both men and women teachers, which might well be concentrated in the neighborhood of the reception-room and the principal's room. The School Committee now have under consideration a change in the organization of high school teachers, which may require a modification of the arrangement of the offices.

## CHEMISTRY.

(1.) *The Rooms in General Required*.—Laboratory, separate from lecture-room, may be used as recitation-room, but better to use lecture-room and keep laboratory free from desks and demonstration table. Lecture-room, separate from laboratory, but easy of access, may be used for recitation; in that case should have facilities for demonstration. Combined lecture-room for physics and chemistry admissible. Three rooms for administrative purposes, store-room for dry chemicals and apparatus, room for storage of liquid chemicals and preparation of re-agents, which may also be used as a teacher's laboratory and an office. The total



CHEMICAL  
LABORATORY.

area of the laboratory and administration rooms should be about 1,200 square feet, and of the lecture room about 600 square feet.

(1.) *Size*.—Should accommodate a class of forty to fifty pupils, with apparatus. Accommodation for three such classes.

(2.) *Light*.—On two sides.

(3.) *Heating and Ventilation*.—On same basis as for class-rooms, but removal of gases should also be provided for by a hood, each compartment of which should be ventilated by 9-inch hole at top, venting into elbow or T of drain pipe, thence connected by drain pipe into main flue, in which should be a fan operated by a motor.

(4.) *Walls and Ceiling*.—Walls of brick ideal, but not generally feasible, except on outside walls; plaster walls painted in oils and ceiling of plaster, covered with water-resisting surface containing no lead. All woodwork to have natural finish, except tops of desks.

(5.) *Floor*.—Preferably of concrete; may be of hardwood in narrow strips, filled in by asphalt; should slope very slightly between desks, interspaces again trending to common corner, which may be drained.

(6.) *Equipment*.—Working desks at right angles to greater length of room, in sections back to back between windows; sections movable when top is removed. Each section 21 feet to 24 feet 6 inches long, 2 feet wide, 3 feet to 3 feet 2 inches in height. Distance between double sections about 5 feet, same distance at least between ends of sections and hood, which should be opposite longer line of windows and at right angles to direction of desk sections. Other ends of sections near enough to wall to allow for drain at right angles to sections and under windows. Desks to be of ash or any durable wood, natural finish. Top of narrow pine strips, treated with aniline black and waterproof lead finish. Individual desks provided with 3 lockers and 3 sets of drawers each, each set of drawers operated by bar from locker, combination lock to fasten locker. Each double section of desks provided with soapstone sink, placed between sections and flush with section top, which should slope slightly to sink.\* Sink 8 inches at least wide,

\* Individual sinks are preferred by the teachers, although the long trough is apparently adequate for teaching elementary chemistry, and is less expensive.

and should begin within 1 foot of the end toward hood, depth here to be 6 inches, running nearly to other end, where depth should be 8 inches. Each pupil to have working space of 3 feet 6 inches by 1 foot 8 inches. Each double section of desks provided with shelf for re-agents, running length of desk, 10 inches to 12 inches above desk, supported by metal standards at suitable intervals, of white wood,  $1\frac{1}{4}$  inches thick, 9 inches wide, natural finish, covered with glass plates,  $\frac{1}{4}$  inch thick, 9 inches wide, suitable lengths, clamped to wooden shelf with as few clamps as possible. Wooden shelf at free end of each section, 1 inch to  $1\frac{1}{2}$  inches thick, 3 feet to 4 feet long, not over 1 foot 3 inches wide, height of 2 feet 8 inches to 2 feet 10 inches, for holding blast lamps, re-agent jars, etc. Finish off top of shelf in aniline black. Floor space under second row of windows taken up with line of extra desks, built like sections, furnished in similar way, but without necessarily a drain, to be used for emergency or general utility. Wall space not otherwise occupied may be used for shelves or cabinets. Fixed slate blackboards at end opposite second set of windows and parallel to desk sections, sliding slate blackboards above hood. Liquid waste may be thrown into desk sink, dry waste into earthen jars. Hood should run at right angles to desk sections and along wall opposite free ends of sections. In the construction of hood, protection against fire should be considered. Should be built against brick wall. Floor of hoods to be of slate; wood, inside and outside, to be finished natural. Space divided into 3 or 4 compartments, closed by sliding windows, Space against wall not occupied by hood for general link.

(7.) *Gas*.—Lead from gas main at free end of centre of double desk sections, branch into 2 leads along back of each section. Take-offs between each working desk space in form of pillar with two  $\frac{1}{4}$ -inch cocks, at each end desk a single cock. Two  $\frac{1}{4}$ -inch gas nipples at each side of each compartment of hood. Cocks of these outside of hood. Wall desk fitted with single gas taps at intervals of 2 feet.

(8.) *Water*.—Lead from water main at free end of centre of double desk sections. Size, large enough to fill section sink rapidly.

Lead of ordinary size along length of section underside of shelf, take-off at free end of section, to which blast and suction pump may be attached. At junction of each four working desk spaces take-off, carrying two valves with hose bibb delivery  $\frac{1}{4}$ -inch, the two valves or cocks facing opposite sides. Suction pump attached to these bibbs if desired.

(9.) *Drains.*—Section desk sink to have open drain and mercury arrestor, into which should be set movable concave netting of wide mesh to arrest larger solid matter. Main desk drain at right angles to sections along and under windows, between windows and sections should be in form of wooden trough, in sections dovetailed from 6 inches to 8 inches inside diameter and equally deep, covered with asphalt paint or filling; may be supported on brackets against wall and left open, or covered and provided with movable top. Into this drain will drip the lead pipes coming from section sink. Slate floor of each hood compartment should deepen slightly in centre, where there should be a hole 1 inch in diameter, into which is fitted short lead drain pipe, closed by perforated plug; drain pipes to be connected with sloping drain pipe, open or closed, running toward and delivering into general sink.

(10.) *Electricity.*—Current of electricity on section desks need not exceed ten volts, may be supplied from source common to physical and chemical side. Plugs between each working space placed under desk top on frame.

LECTURE AND  
RECITATION  
ROOM.

(1.) *Size.*—Area to depend on number of seatings required or number of pupils in classes; should be large enough for two classes and should occupy a position between the laboratories for physics and chemistry.

(2.) *Light.*—As much glass area as classroom, preferably from left. Fit windows and other openings admitting light with dark curtains as specified under Assembly Hall. Electric lighting from the top, controlled at point convenient to demonstration table.

(3.) *Floor* stepped up in fireproof construction and finished in wood like floor.

(4.) *Heating and Ventilation.*—As for class-rooms, with extra ventilation to remove fumes. Space at left end of desk provided with register and flue of at least 10 inches diameter, to afford means of down draught.

Flue carried under floor to nearest wall, flue and draught actuated by motor, if not sufficient.

(5.) *Equipment.*— Demonstration table, not less than 12 feet long, not more than 3 feet, nor less than 30 inches wide, height 32 inches. Placed 4 feet distant from wall, material same as that of room, top made of pine plank and finished like chemical laboratory desks. Pneumatic sink at right hand of desk, of soapstone in 2 depths. Not to exceed 30 inches long, 20 inches wide. Depth, 4 inches to 6 inches minimum; 16 inches to 18 inches maximum. Length of minimum depth not to exceed 60 per cent. of total length. Sink to be depressed in table and provided with flush cover. Sink to have screened drain with mercury trap and overflow. Supply hot and cold water under reduced pressure and cold water under street pressure for quick filling, 2 goosenecks with  $\frac{3}{4}$ -inch hose bibbs, to one of which combined blast and suction pump may be attached; steam supply direct from boiler main with a by-pass to summer boiler; supply gas air suction, and gas taps not exceeding 6 in number. Over demonstration table, secured to ceiling, provide a plank with heavy screw hooks. Behind lecture table provide sliding blackboards of not less than 50 square feet, and a canvas curtain on heavy spring roller for attaching charts. Drawers and closets for lesser lecture apparatus and chemicals in body of table, wall on either side provided with shelves for re-agent bottles under glass, and side wall provided with cabinets for larger pieces of permanent apparatus, if there is no special room for this. Lifting seats with desk for taking notes arranged on platforms, so that the successive tiers will rise one above the other to insure an unobstructed view of demonstration table. (See drawing.)

(6.) *Electricity.*— Provide three (3) forms of current, viz., one circuit for direct current at 110 volts, 30 amperes, and one circuit for 5 to 20 volts, 50 amperes, and one circuit for alternating current at 110 volts, 30 amperes. Regulating rheostat for the 5 to 20 volt direct current to be located conveniently to table. A 50-ampere ammeter and a 125-volt voltmeter, both with extra large illuminated dials,



mounted on swing brackets in full view of class and instructor; suitable means for switching ammeter and voltmeter to either circuit. Terminate circuits in nonreversible push plug receptacles. A projection lantern and receptacles for same at end of table and at rear of room. Lantern screen on spring roller at side of room, width of screen usually 12 feet, but dependent on distance and lenses used.

ADMINISTRATIVE  
FACILITIES.

(1.) *Apparatus Storeroom*.—Should give ample space for storage of extra and reserve apparatus and original packages of stock chemicals. These should be kept in dust-proof cabinets with glass doors and in drawers.

(2.) *Preparation Room*.—This should adjoin the above. Primarily for storage of liquid chemicals in bulk and preparation of liquid re-agents, and storage of supply bottles, also fitted for teacher's laboratory. Should have wide centre table with gas in centre, working desks, with drawers and closets along two sides, also gas, water, sink, blast, suction, steam and electricity. Shelves along desks for storage of liquid chemicals, supply bottles and smaller re-agent bottles. An adequate hood should be provided.

(3.) *Office and Balance Room*.—Adjoining storeroom and preparation-room should be small room to contain desk, book shelves, table and a good grade balance.

PHYSICAL  
LABORATORY.

(1.) *Size*.—In a space about 30 by 40 feet. A laboratory, apparatus-room, and shop.

(2.) *Light*.—The same basis as for class-rooms, one wall having as direct a southern exposure as possible for *porte lumiere* studies. Artificial light, as in a class-room. Dark curtains in addition to regular shades for darkening room. Windows and all openings admitting light fitted as specified under Assembly Hall (p. 88).

(3.) *Heating and Ventilation*.—On same general basis as for class-rooms.

(4.) *Equipment*.—Small laboratory tables to accommodate two or four pupils at each, built of hard wood, white pine tops, fitted with 4 drawers, supports and adjustable cross-bar. Wall tables around room on sides where there are windows, with one or two shallow drawers under, but not deep enough to interfere with comfort of pupil. Soapstone drip sinks with cold water to be provided at these tables, one

to every six or eight pupils. Instructor's table, fitted with hot and cold water, Richards' pump, numerous cupboards and drawers of various depths and widths. Two-inch plank bolted to ceiling over this table, with space of 2 or 3 inches between plank and ceiling for attachment of pendulums and other apparatus. Provide electric outlet for stereopticon and screen for same.

(5.) *Furniture*.— Provide adjustable stools for all the tables and a sufficient number of tablet arm chairs to accommodate the entire division during demonstration exercises. Chairs to be placed in rectangle formed by pupils' tables and demonstration table. These are not in building contract, but to be laid out on preliminary plans.

(6.) *Electricity*.— One outlet for direct current at 110 volts E. M. F. and 30-ampere capacity. One outlet for direct current at low voltage with regulator conveniently located. One outlet for alternating current at 110 volts E. M. F. and 30-ampere capacity. One outlet for each kind of current at demonstration table, to be single pole push plugs instead of binding posts. Series and multiple connections at each pupil's table. Switch in laboratory to cut out pupils' tables.

(7.) *Gas*.— Pupils' tables to be equipped with gas, 4 cocks to each table. Wall tables to be equipped with gas. Demonstration table to be provided with gas.

(8.) *Bulletin Board*.— 25 to 50 square feet of bulletin board, covered with burlap, secured at edges, but not glued on like wall paper.

(9.) *Blackboards*.— As much blackboard space as possible. Sliding blackboards back of demonstration tables.

#### APPARATUS ROOMS.

(1.) *Size*.— One large or several small rooms, to open directly out of laboratory, and connected with lecture-room.

(2.) *Equipment*.— To be fitted with dust-tight cases with adjustable shelves and sliding glass doors, 7 feet high; cabinets of drawers of various widths and depths, mostly narrow and shallow. Some of these cases may be in the laboratory if there is sufficient wall space. A small sink and hood should be provided.

#### SHOP.

(1.) A small shop is desirable, though not absolutely necessary. This should be equipped with work bench, power lathe, belted to motor

BOTANICAL AND  
ZOOLOGICAL  
LABORATORY.

generator, and shelving for tools and stock, and may be set up in apparatus room.

(1.) *Size*.—In a space about 30 by 40 feet. Laboratory and apparatus room.

(2.) *Light*.—Windows the same as for class-rooms, one wall with southern exposure. Artificial light as in class-rooms.

(3.) *Equipment*.—(a) Twenty-one pupils' tables, 54 inches by 24 inches by 30 inches high, each to accommodate two pupils, to have plate glass tops.

(b) Soapstone sink, 72 inches by 30 inches, 10 inches deep, accessible on all sides. Supply with cold water, about 8 bibbs and 2 hose bibb cocks.

(c) One aquarium, 30 inches long, 20 inches wide and 20 inches high, with supply, gooseneck cock with aspirator and standing waste.

(d) Ice chest, 36 inches by 24 inches.

(e) Cases built wherever practicable. Three sections to contain 42 pigeon holes, 3 inches by 3 inches by 8 inches, for storage of instruments. A liberal supply of cases to contain drawers and cupboards in lower compartment, and shelves above for exhibition of specimens, storage of material, instruments, books, charts, etc.

(4.) *Furniture*.—Forty-two adjustable screw revolving chairs not in building contract.

GYMNASIUM  
AND DRILL  
HALL.

(1.) To be used in common for gymnasium exercises, athletic games, and the drilling of the school cadets. On account of its size and for structural conditions, to be generally located in the basement, with clear span of ceiling and combined height of basement and first story. Visitors' gallery generally provided at one end, entered from first floor.

(2.) *Size*.—The classes exercising in the gymnasium are from fifty to one hundred, and a suitable floor space for this number, as well as floor space for a full company of cadets at drill, is from 3,750 to 4,000 square feet. The height should not be less than 24 feet.

(3.) *Light*.—Ample outside light in all cases. Electric light from ceiling protected with wire guards.

(4.) *Heat and Ventilation*.—The former sufficient to guarantee a temperature of about 60 degrees, and about twice as much ventilation as is customary for the ordinary class-

room. This is, of course, insufficient for the number of people who might occasionally occupy the gymnasium for exhibitions, but it is more than enough for the ordinary number using it for class exercises.

(5.) *Equipment.*—The standard gymnastic apparatus consists of the following fixtures, which may be slightly modified in particular cases:

- 25 Bar stalls.
- 25 Bar stall benches.
- 4 Double booms.
- 4 Saddles.
- 20 Vertical ropes.
- 2 Inclined ropes.
- 2 Rope ladders.
- 5 Serpentine ladders.
- 2 Vertical ladders.
- 3 Horizontal ladders.
- 2 Boxes, 1 horse, 1 buck.
- 12 Balance boards.
- 2 4 by 7 mats.
- 2 5 by 10 mats.
- 4 Pairs jumping standards and ropes.
- 4 Inclined planes.
- 6 Travelling rings.
- 1 Pair basket ball goals.
- 3 Basket balls.
- 4 4-lb. medicine balls.
- 16 2-lb. medicine balls.
- 24 Small rubber balls,  $2\frac{1}{2}$  to 3 in. in diameter.
- 8 Indoor baseballs.
- 1 Fairbanks scale.
- 1 Water spirometer.
- 1 Tape measure.
- 1 Dozen glass mouthpieces.
- 24 Bean bags.
- 1 Truck to carry mats.
- 1 Storming board.
- 6 Pairs  $1\frac{1}{2}$ -lb. Indian clubs.
- 40 Pairs  $\frac{3}{4}$ -lb. Indian clubs.
- 8 Chest weights.
- 1 Horizontal and vaulting bar.
- 1 Pair parallel bars.
- 2 Jump boards.
- 1 Shoulder caliper.

(6.) *Gun Racks.*—Racks for holding the guns carried by the cadets should be provided on wall. These racks should be protected by locked doors.

(7.) *Special Rooms.*—Adjoining gymnasium and drill hall two small rooms about 10 feet square should be provided for school matron and director of gymnasium.

(8.) *Dressing Rooms, Baths and Lockers.*—  
(a.) *System.* The clothing of all the pupils is in a central locker room, each suit being



numbered and all being under the control of the attendant in charge. Dressing-rooms are provided in number equivalent to the number of a class. A class coming for exercise is given their gymnasium clothing and keys to dressing rooms, which they lock behind them when exercising. After exercise they can take a shower bath. When dressed the dressing-room keys are given up, but the gymnasium clothing is left to be gathered up by the attendant. The clothing is carried to the dry-room, and when dried each set is put back in its proper pigeon hole.

(b.) *Lockers*.—The locker-room is controlled by the attendant, and contains pigeon holes, 10-inch cube, one for each pupil in the school, and a counter over which to deliver the clothing. Adjoining this is the dry-room, capable of being heated to a high temperature and thoroughly ventilated. This is fitted with hooks and clothes line.

(c.) *Dressing-rooms*.—The dressing-rooms are small cabins, about 3 feet square, with a locked door, a seat and hooks.

(d.) *Showers*.—The shower baths are 3 feet square, divided by slate partitions, similar to those for water-closets, each having a bar at the front, over which a cotton sheet can be dropped. Each compartment has two sprays in opposite corners.

#### HANDICRAFT ROOMS.

There should be space in one or more rooms for freehand drawing, mechanical drawing, woodworking, and metal-working.

(1.) *Size*.—The space should be about 3,000 to 3,600 square feet. The free-hand drawing-room should be preferably divided into two drawing-rooms, with a work room between.

(2.) *Light*.—Windows and artificial light, by special fixtures. North light preferable in the drawing-rooms.

(3.) *Floors*.—Of wood.

(4.) *Walls*.—As in a manual training room.

(5.) *Ceilings*.—As in a manual training room.

(6.) *Heating and Ventilation*.—Same as in class-rooms.

(7.) *Stock-room*.—The lumber stock-room should contain at least 80 square feet, preferably long and narrow. Two 18-inch shelves should run around the room, 5 feet 6 inches, and 6 feet from floor.

(8.) *Teachers' Closets.*—Teacher's closet in woodworking room should be large enough to be used for storage of finished work, and should be fitted with all shelving possible, as well as with the customary coat hooks. An area of 40 square feet is adequate.

(9.) *Fittings.*—(a.) Bookcases, like those in class-rooms, 150 capacity.

(b.) *Cases.*—For work in process, extra tools, supplies, drawing boards, models, paper, finished drawings, etc. (For all of these, see drawings.)

(c.) *Display Boards.*

(d.) *Sink.*—A 5-foot sink, with hot and cold water.

(10.) *Equipment of Free-hand Drawing-room.*—Provide accommodation for five divisions, each class about twenty-five pupils.

(11.) *Equipment for Mechanical Drawing-room.*—(See Fittings.) Also 12 double drawing tables, 7 feet 4 inches by 2 feet, with drawers for instruments.

(12.) *Equipment of Woodworking Room.*—Provide accommodation for four divisions, each class about 20 pupils: 20 benches, 36 inches by 18 inches, fitted with 2 vises, one to be a quick action, iron vise, 3 speed lathes, 1 jig saw, 1 circular saw.

(13.) *Equipment of Metal-working Room.*—Six double benches, 8 feet by 2 feet, fitted with 12 Prentiss iron vises, 3½-inch jaw; wall bench, fitted with 10 stations, tool drawers, and 5 Bower's tool holders; one ¼-inch gas hose cock terminal, above each bench station; 2 gas blast burners, 1 large, 1 small; metal-covered bench with ventilated hood; 1 muffle furnace, ventilated; 1 drill; 1 forge, ventilated; 1 anvil; 1 grindstone; 1 table tool rack; 1 pair bench shears; 1 engine lathe.

(14.) *Motor.*

#### HOUSEHOLD SCIENCE.

(1.) *Size.*—The space should be about 1,200 square feet, and should accommodate the kitchen, two small rooms for showing the care of a dining-room and of a bedroom, and a china-closet and pantry.

(2.) *Light, Heat, etc.*—The same as that for other rooms, with additional ventilation in the kitchen.

(3.) *Equipment.*—The kitchen to contain the same equipment as that for grammar school cooking-rooms, but for 24 stations only;

a kitchen pantry fitted with shelving and a china closet fitted with a sink; drawers, cupboards and shelves enclosed with glass doors. The dining-room and bedroom simply finished rooms, having no equipment except the furniture.

#### LUNCH ROOMS.

(1.) *In General*.—The lunch rooms in Boston schools have usually been located in the basement, and where these are high and well lighted, this location seems to serve satisfactorily. They should, however, have the special ventilation that is provided in a basement cooking room. In size, they should accommodate comfortably, seated at benches or small tables, that proportion of the pupils in the school which take advantage of the luncheon facilities.

(2.) *Equipment*.—(a.) The counter should be set at 2 feet 8 inches high, and should have a rail 2 feet from it, with openings at intervals, to keep children in single file, and there should be accommodation under the counter for dishes.

(b.) *Range*.—A six-hole gas range, with ample oven space.

(c.) *Sinks*.—Two good-sized soapstone sinks.

(d.) *Ice Box*.—Of sufficient size to take care of milk supply.

(e.) *Lockers*.—Sufficient to care for the clothing of the attendants, and for mops and brooms, etc. These should not be under the counter, or near any place where food is kept.

(f.) *Furniture*.—In some cases the children are provided with camp chairs and small round tables to seat four. In others, ordinary school benches have been provided. Both seem fairly satisfactory in operation.

#### LIBRARY.

(1.) A space equivalent to a small classroom is ample for library purposes. The book accommodation will depend somewhat on the size of the school. The library is planned as a reading-room, that is, with the books in the room and not in a separate stack-room.

#### WARDROBES.

(1.) In high schools common wardrobes are—one for boys and one for girls—advised for all the clothing, situated on the lower floor to avoid bringing dirt into the upper floors. There being an attendant on the lower floor, the room as a whole can be locked up.

(2.) *Light*.—The rooms should have outside light.

(3.) *Heat and Ventilation.*— This should be thoroughly well heated and ventilated, similar to class-rooms.

(4.) *Equipment.*— The poles, hooks, etc., will be similar to those used in the other schools, but more space should be given the girls, *i. e.*, about 1 foot 6 inches on center. It has been found desirable to have some locked pigeon-holes, 20 by 20 by 12 inches.

#### HEATING VENTILATION AND ELECTRIC SYSTEMS.

##### HEATING AND VENTILATION GRAVITY SYSTEM.

###### (1.) *Heat Ducts for School-rooms.*

(a.) *Location.*— In a corner room, locate the duct on the inside wall within 10 feet of the outside wall. In a room with one outside wall, locate the duct on the inside wall, near the middle.

(b.) *Size.*— Allow one square foot area of duct for each nine occupants. The opening into the room is to be the same area as the duct. The bottom of the opening is to be about 8 feet 6 inches above the floor. Galvanized-iron deflectors, painted to match the adjoining walls, will be placed in each opening. In addition, there will be a galvanized-iron ground around the opening.

###### (2.) *Vent Ducts for School-rooms.*

(a.) *Location.*— In a corner room, locate the duct at the inside corner of the room, and where possible on the same wall as the heat duct. In a room with one outside wall, the duct is to be on the same inside wall as the heat duct, and as near the middle as possible.

(b.) *Size.*— Allow about one square foot area of duct for each ten occupants. The opening into the room will be at the floor, and will be the full size of the vent duct. There will be no guard at the opening. The floor will be carried into the bottom of the duct, and the baseboard will be carried in and around. The inside of the duct exposed to view will be plastered and finished to match the adjoining walls.

##### PLENUM FAN SYSTEM.

###### (1.) *Heat Ducts for School-rooms.*

(a.) *Location.*— In a corner room, locate the duct within ten feet of the outside wall. In a room with one outside wall, locate the duct on the inside wall, near the middle.



(b.) *Size.*— Allow one square foot area of duct for each ten occupants. The opening into the room is to be one-third larger than the area of the duct. The bottom of the opening is to be about 8 feet 6 inches above the floor. Galvanized-iron deflectors, painted to match the adjoining walls, will be placed in each opening. In addition, there will be a galvanized-iron ground around the opening.

(2.) *Vent Ducts for School-rooms.*

(a.) *Location.*— The location and size will be the same as those for the Gravity System.

TOILET-ROOM.  
VENTS.

(1.) *Duct.*— Allow 10 square inches of duct area for each closet and 8 square inches for each lineal foot of urinal space.

(2.) *Opening.*— Each door into the toilet-room is to have an opening either in the lower panel, with a register face on each side, or underneath the door. The net area through the opening in either case is to be equal to the area of the main vent duct from the room.

WARDROBE  
VENTS.

(1.) \* *Duct.*— Each wardrobe is to have a vent-duct with an area of  $1\frac{2}{3}$  square feet and having a register at the bottom of the room.

(2.) \* *Opening.*— The door leading into the wardrobe at the end farthest from the vent duct is to have an opening similar to that for a toilet-room, so that the air can pass from the school-room into the wardrobe and thence out through the duct.

ELECTRIC  
WORK.

(1.) *Service.*— This should enter basement underground at location to be determined by reference to street mains, and should terminate on a switchboard located in a fire-proof closet, opening if possible into the basement corridor.

(2.) *Conduits.*— All wires to be run in iron conduit concealed, except conduits for mains in basement, and side outlets in boiler, engine and stack rooms. Tap circuit conduits to be run above rough floor wherever possible. If floor construction will not allow this they are to run below floor beams and above ceiling, a space of 2 inches being left in which they can be run.

(3.) *Wire Slot.*— Obtain from electrical division the location of slots and openings for conduits and panel boards.

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\* This would be modified if the Chicago system of wardrobes is adopted.

(4.) *Cabinets.*— All cabinets to be furnished by wiring contractor, but finished by the general contractor.

(5.) *Cutting.*— All cutting and patching to be done by the general contractor.

(6.) *Outlets.*— Class-rooms to be provided with 9 four-light ceiling outlets, controlled by 3 switches. Wardrobes to have 1 ceiling outlet, controlled by switch in class-room. Corridors to be lighted from ceiling wherever possible. Height of side outlets in rooms to be 6 feet and in corridors 6 feet 4 inches. Switch outlets to be 4 feet. Switches in corridors, play-rooms, and pupils' toilet-rooms to be operated by private key.

(7.) *Fixtures.*— Fixtures in class-rooms to be of special design to combine a direct and diffused light.

(8.) *Gas.*— Gas outlets to be provided in all corridors, vestibules, stairways, boiler-room and assembly hall exits; all except vestibule to be wall outlets. Gas-piping to be included in the electrical engineer's work.

(9.) *Stereopticon.*— All grammar schools and high schools to be provided with an electric projection lantern with reflectoscope attachment.

(10.) *Clocks and Bells.*— All schools to be provided with an electric system of clocks, operated by a master clock. All primary schools to be provided with a system of signal bells, operated by push buttons. In all grammar and high schools the bell system to be operated automatically by master clocks, according to prearranged program.

(11.) *Telephones.*— In all schools, each class-room, hall, teachers' room and boiler-room to be connected to master's office, or to room occupied by the first assistant, by a telephone system.

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NOTE.— Drawings showing special fittings for both plumbing and interior fittings will be found in Appendices IX., X., and XI.

## APPENDIX VIII.

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REPORT ON RENTS COLLECTED BY THIS DEPARTMENT FROM BUILDINGS LOCATED ON LAND TAKEN BY THE CITY.

It frequently happens when land is taken by the city for schoolhouse purposes that buildings of rentable character are included. Previous to September, 1903, no effort was made to retain or get tenants for such buildings; usually the tenant moved out as soon as the city obtained title to the property, and the buildings were allowed to stand idle until the erection of a new schoolhouse was begun. Any rents that might be collected in the meantime were usually taken care of by the agent through whom the property was purchased and by him turned over to the City Collector.

On September 1, 1903, the department took direct charge of the various properties and endeavored to obtain as much return for their use as possible by encouraging the tenants to remain until the buildings were to be torn down and, if possible, renting vacant apartments. Rents were collected and necessary repairs made; the balance of rent was turned over to the City Collector. The average time during which such buildings could be rented was about six months, but in some instances it was considerably longer.

The buildings on the land purchased for the addition to the Mechanic Arts High School remained in possession of the city for four years. They consisted of six houses of four apartments each and a business block. For the former the department was obliged to furnish a janitor, heat the buildings and light the halls, thus necessitating quite a large expense for maintenance.

In 1906 it was decided to advertise for bids for the erection of the new school, and the apartments were accordingly vacated. After the bids were received it was decided to postpone the work and the tenements were again rented. It was necessary, however, to expend a very considerable sum of money in repairing the damage caused by the investigations of the various bidders before this could be done.

Properties held by this department from September 1, 1903, to February 1, 1909, and income and expense of the same:

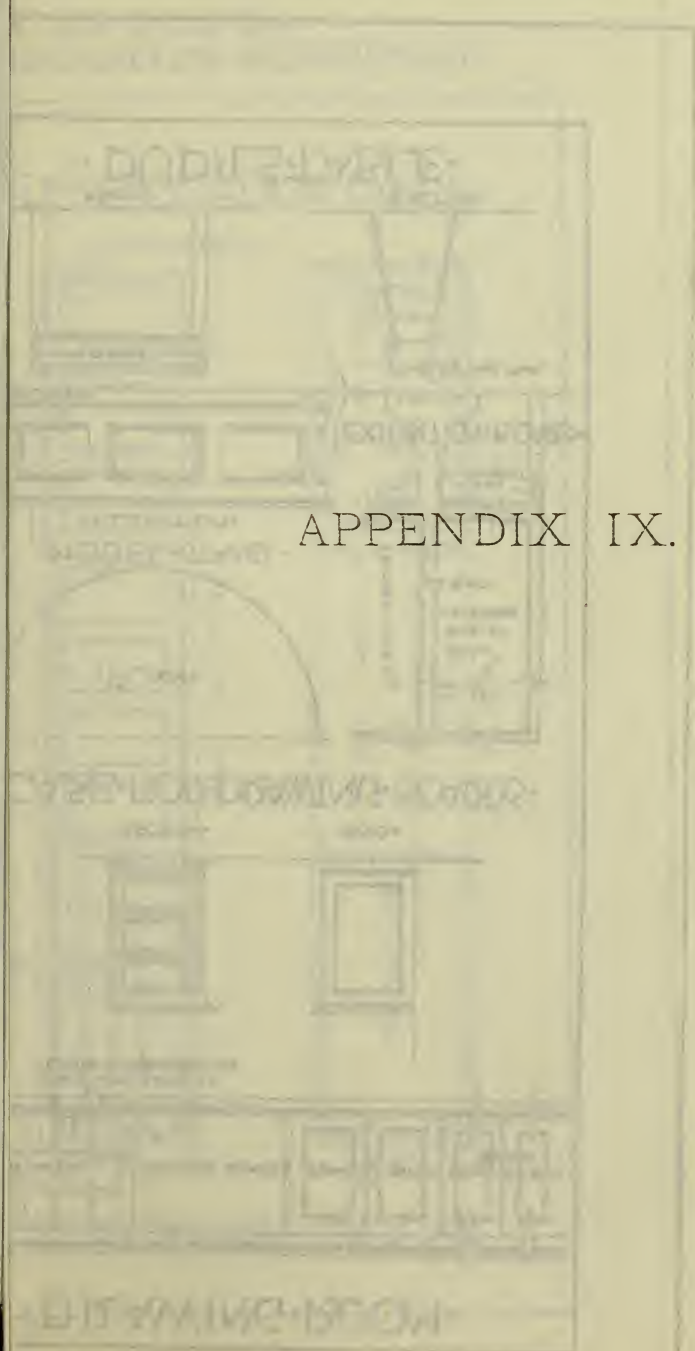
	Income.	Expenses.
James Otis School site.....	\$212 00	*\$571 43
Tuckerman School site.....	1,948 75	250 67
Bishop Cheverus School site.....	188 65	81 27
Charlestown High School site.....	2,017 50	599 95
Mechanic Arts High School site.....	15,875 02	11,486 15
Edward Everett School site.....	83 33	†145 99
Peter Faneuil School site.....	2,027 45	1,795 86
Abraham Lincoln School site.....		
Paid City Collector.....		6,500 00
	22,352 70	\$21,431 32
Balance on hand, February 1, 1909.....		921 38

\* Includes \$200 paid for tearing down some of the buildings, and \$137.50 paid for filling portion of lot by order of Board of Health.

† \$114.75 paid for clearing the premises of gypsy and brown-tail moths.







APPENDIX IX.





# HIGH.

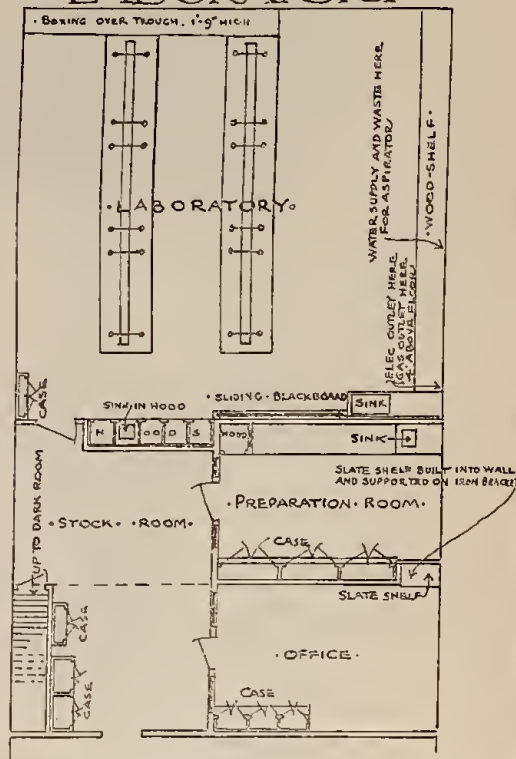
# SCHOOL.

# STANDARD.

# FITTINGS.

CITY OF BOSTON.  
SCHOOLHOUSE DEPARTMENT.

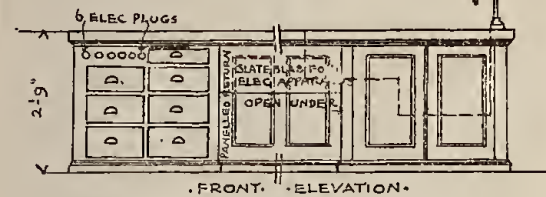
## CHEMICAL. LABORATORY.



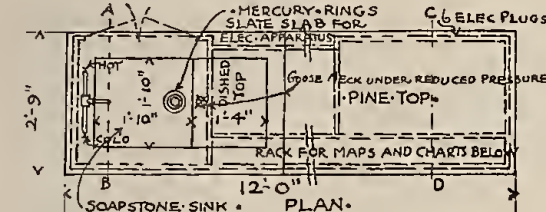
## INSTRUCTORS TABLE.



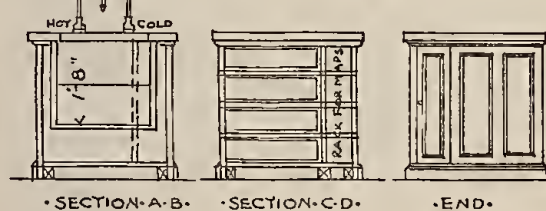
## IN CHEMICAL.



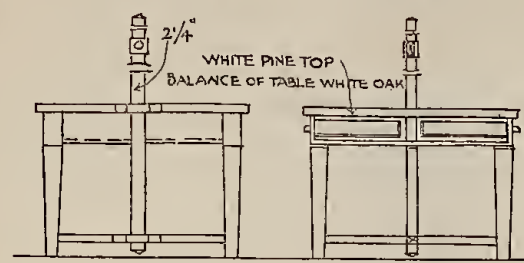
## AND PHYSICAL.



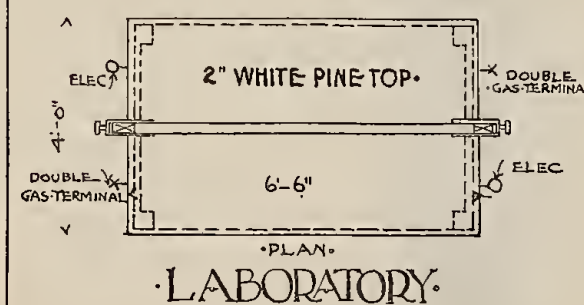
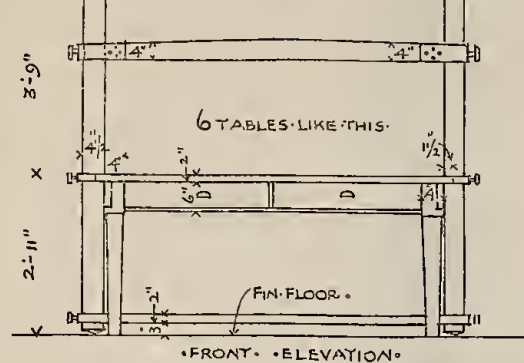
## LABORATORIES.



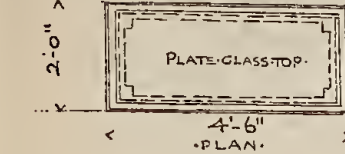
## PUPILS TABLE.



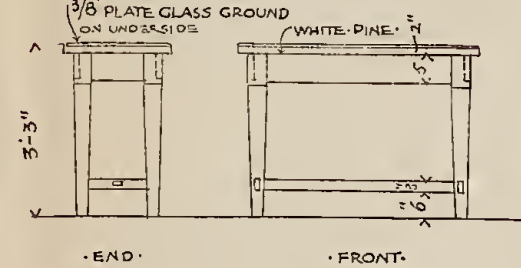
## PHYSICAL.



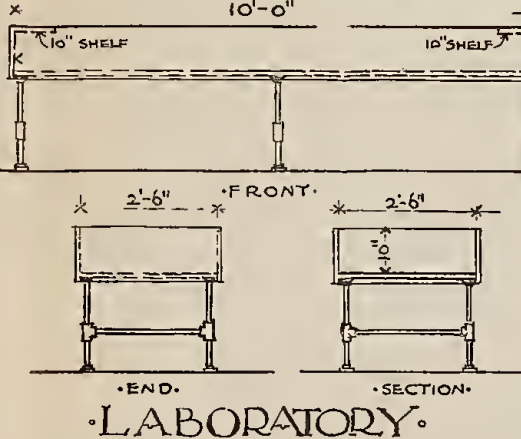
## DUPILS TABLE. AND MARBLE SINK.



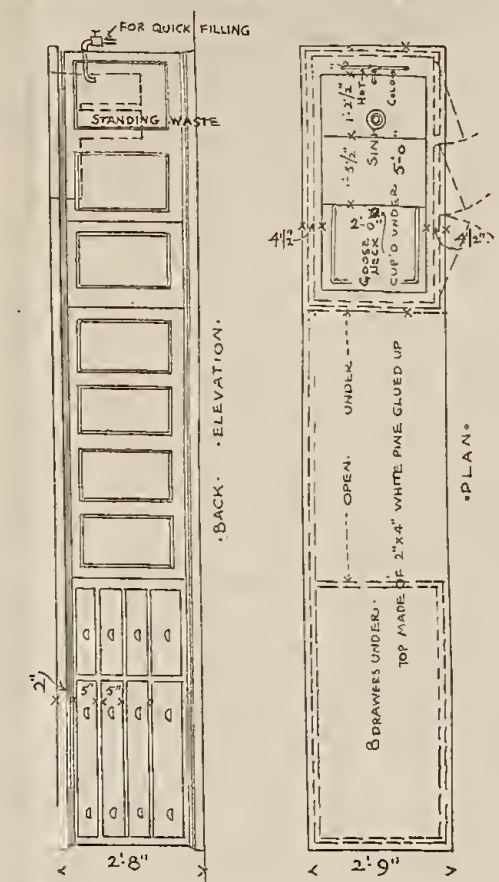
## BOTANICAL.



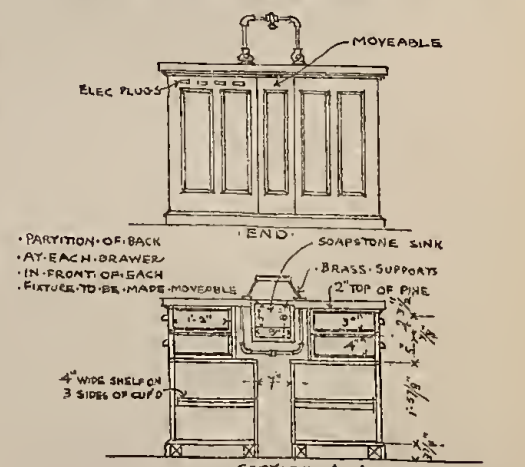
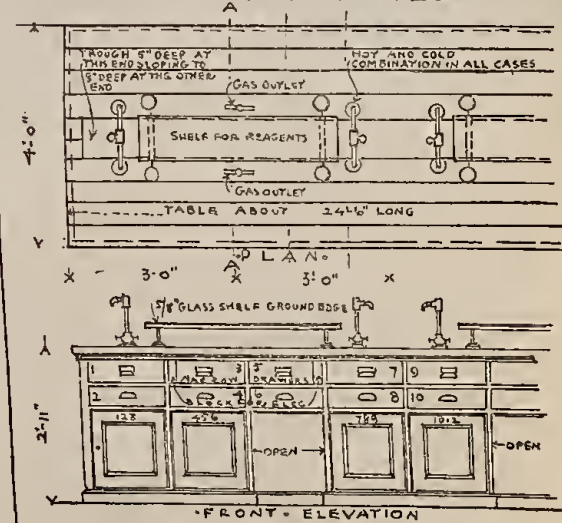
## AND ZOOLOGICAL.



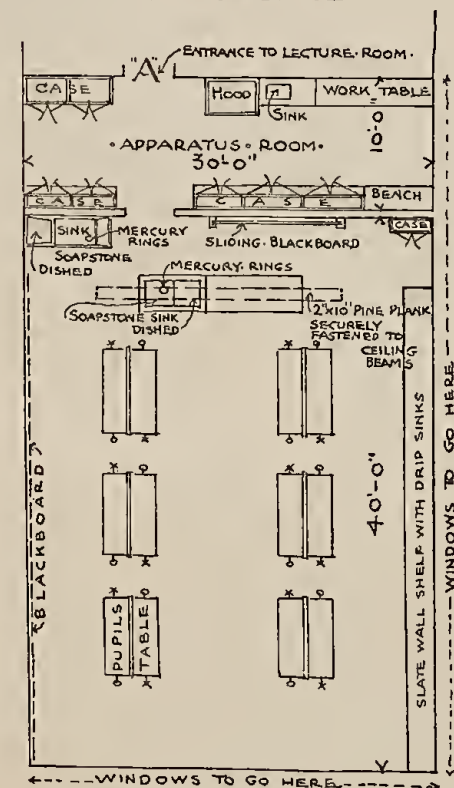
## DEMONSTRATION TABLE.



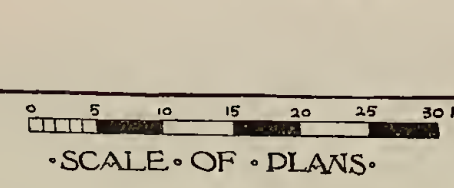
## DUPILS TABLE.



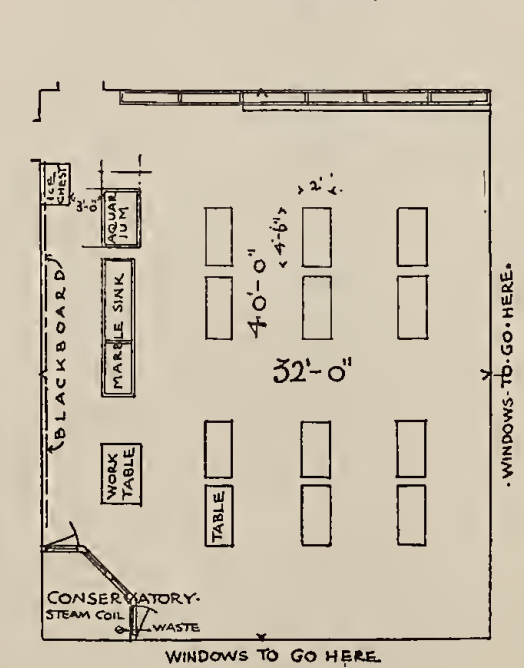
## PHYSICAL.



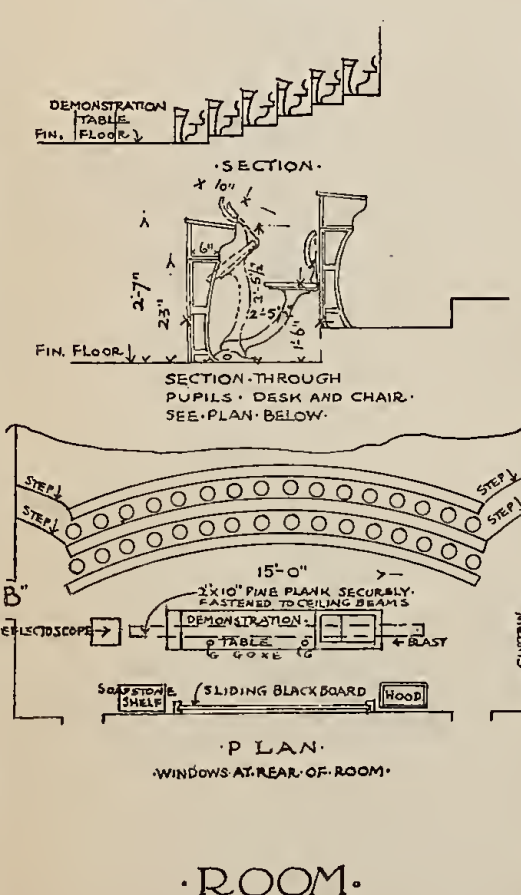
## LABORATORY.



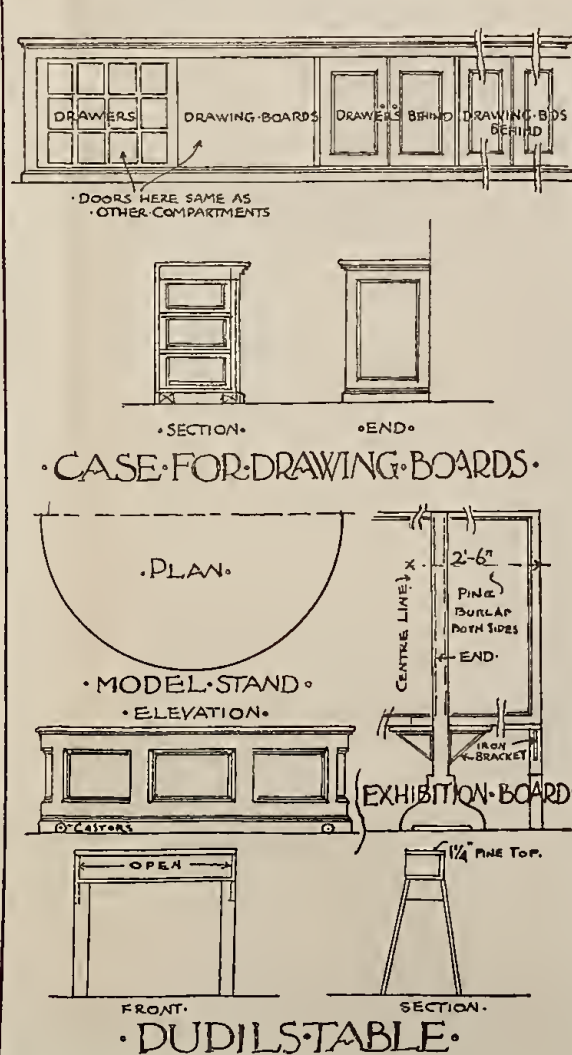
## BOTANICAL. AND ZOOLOGICAL.



## LECTURE.



## DRAWING ROOM.



SCALE OF DETAILS.





CHURCH DEPARTMENT

TEACHERS' CLOSET

APPENDIX X



H I C H

CHURCH

LABORATORY



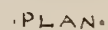
LABORATORY



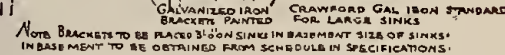
• FLOOR WASH •



## · RUNNING · TRAP.



· SLATE · SINK ·



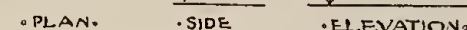
• SLATE • URINAL •



·TIDE ·TRAP·



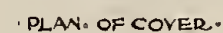
LAVATORY BOWLS.



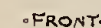
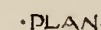
·WATER·  
·CLOSET·DOORS·



. CATCH · BASIN ·



TEACHERS' CLOSET.



SIDE

·SHORT·HOPPER·CLOSET·





# PLUMBING.

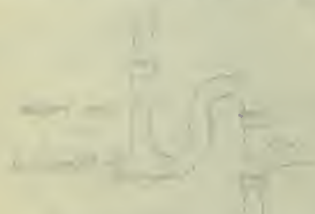
## FLOOR-WASH.



## BLOW OFF VALVE.



## CONDUCTOR-TUB.



THESE DIAGRAMS ARE FOR THE PURPOSE OF ILLUSTRATION ONLY AND ARE NOT TO BE USED AS A GUIDE FOR THE CONSTRUCTION OF THE FIXTURES.

APPENDIX XI.

# PLUMBING

## FLOOR WASH



## BLOW OFF VALVE



## CONDUCTOR TRAP



THE PLUMBING COMPANY  
NEW YORK











## BOOK CASE

1. The book case is to be made of wood.



2. The book case is to be made of wood.

3. The book case is to be made of wood.

4. The book case is to be made of wood.

5. The book case is to be made of wood.

6. The book case is to be made of wood.

7. The book case is to be made of wood.

8. The book case is to be made of wood.

9. The book case is to be made of wood.

10. The book case is to be made of wood.

11. The book case is to be made of wood.

12. The book case is to be made of wood.

13. The book case is to be made of wood.

14. The book case is to be made of wood.

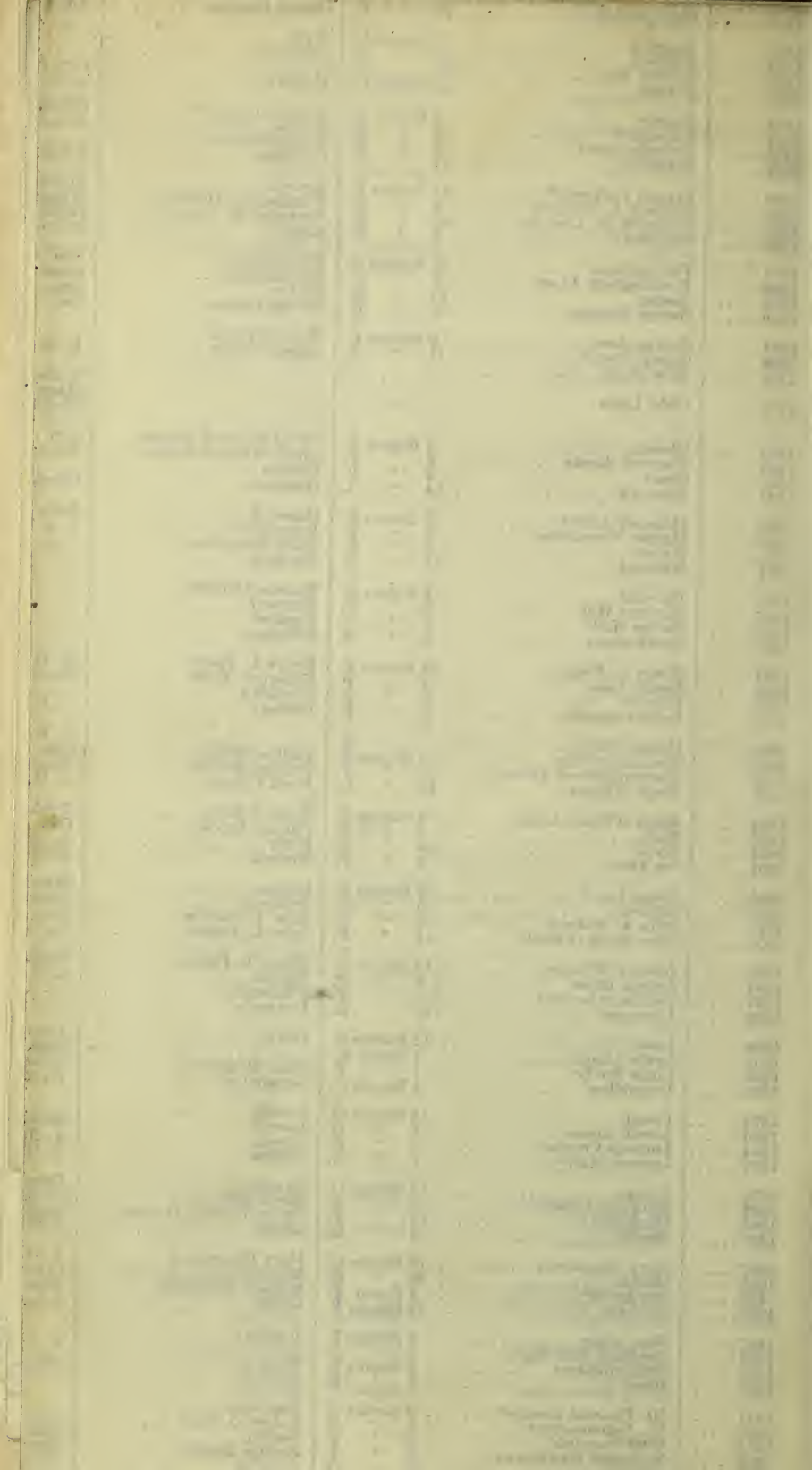
15. The book case is to be made of wood.

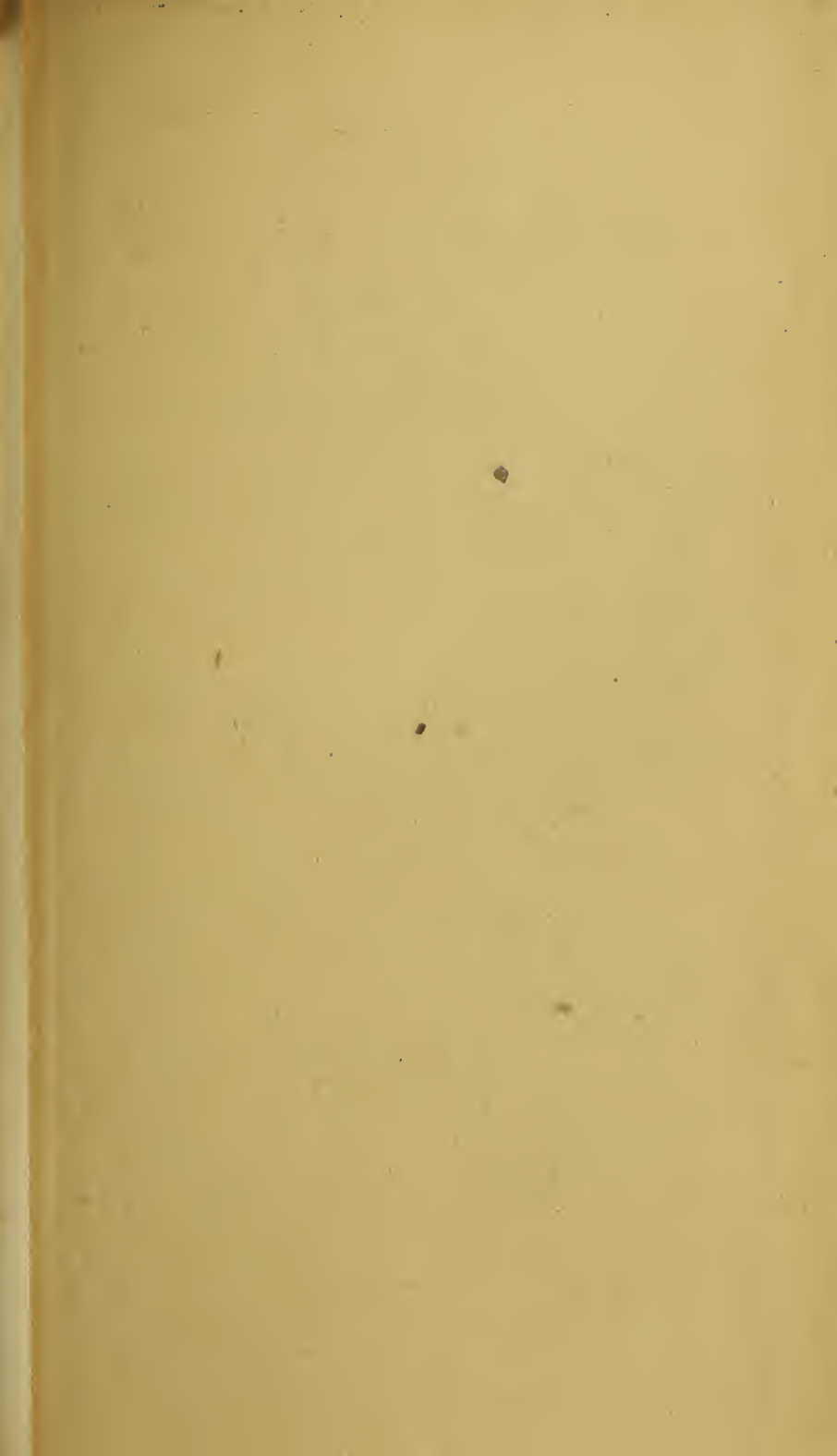


**DESCRIPTIVE SCHEDULE OF PERMANENT SCHOOL BUILDINGS.**

DATE OF CON- STRUCTION.	NAME.	DISTRICT.	ARCHITECT.	DESCRIPTION.	LOCATION OF LOT.	AREA OF LOT.	COST OF LOT.	AREA OF BUILDING.	COST OF BUILDING.	COST OF FURNITURE.	RATES PER PUPIL.	COST PER PUPIL.	
1870	Aaron Davis	12 Rooms P.	Dearborn	Charles A. Cummings	24 Class, 3 Stories	Yennan st., Rox.	18,200	817,100 00	5,080	108,912	844,872 62	600	874.70
1870	Abby W. May	6 - P.	Dulaway	E. M. Wheelwright	24 - 1 Story	Dunston st., Rox.	11,032	5,545 36	4,510	108,912	41,000 08	80 21	100 156 87
1870	Abner	2 - P.	Adams	Joseph H. Richards	24 - 1 Story	Belmont sq., E. B.	21,000	9,930 00	5,627	117,108	108,912 08	80 21	100 156 87
1870	Adams and Chestnut street	2 Rooms P.	Frothingham	Schoolhouse Agent Department	34 - 1 Story	Adams and Chestnut sts., Chan.	20,290	30,885 78	2,654		3,518 00	100	35 18
1870	Agassiz	14 - G.	Agassiz	E. M. Wheelwright	34 - 2 Stories	Adams st., Dor.	44,535		1,570			100	141 69
1870	Albert Palmer	8 - P.	Dearborn	E. M. Wheelwright	24 - 2	East st., Rox.	16,160		4,721	641,538	99,181 23	0 15	700 141 69
1870	Andrew	9 Rooms P.	Quincy	E. M. Wheelwright	14 - 3	Genesee st., near Dartmouth	12,378	47,506 29	4,628	212,016	108,912 08	0 15	700 141 69
1870	Andrew	12 - P.	Rice Training	Emerson & Fehner	24 - 3	Appleton st., near Dartmouth	18,454	28,465 20	5,600		165,694 24	0 25	450 145 79
1870	Anna Gray	8 - P.	Hyde	Geo. A. Clough	24 - 2	Weston st., Dor.	14,973		5,800	211,904	38,068 98	0 18	400 157 17
1870	Arthur	8 - P.	Christopher Gibson	Bryant & Rogers	24 - 2	Columbia rd., Dor.	24,751	11,289 15	5,210		48,022 30	400	120 06
1870	Auburn	4 Rooms P.	Thomas Gardner	Grider J. F. Bryant	34 - 2	School st., Bri.	12,340		1,400			200	
1870	Austin	6 - P.	Lyman	Grider J. F. Bryant	34 - 2	Paris st., Bri.	12,340		1,400			200	
1870	Baldwin	4 - P.	Henry L. Parro	Grider J. F. Bryant	34 - 2	Railway st., Dor.	30,533	11,979 73	5,176		3,025 51	200	131 28
1870	Bakerville	6 - P.	Washington	Grider J. F. Bryant	34 - 2	Chardon st.	9,139	12,276 00	2,276		13,488 00	200	44 09
1870	Barlett street	6 Rooms P.	Dulaway	E. M. Wheelwright	24 - 2	Barlett st., Rox.	7,627		2,280			400	
1870	B. F. Tread	6 - P.	Banker Hill	E. M. Wheelwright	24 - 2	Cambridge st., Chan.	16,727	14,248 20	4,580	181,776	39,991 05	0 22	300 133 30
1870	Benjamin Dabner	8 - P.	Mather	E. M. Wheelwright	24 - 2	Robinson st., Dor.	23,422	10,000 00	4,467	337,087	60,333 34	0 18	400 131 07
1870	Benjamin Dean	8 - P.	Thomas N. Hart	Wm. H. Mosley	24 - 2	St. S. B.	11,477		5,593	12,987 28	12,987 28	0 18	400 131 07
1870	Benjamin Pope	8 Rooms P.	Gaston	C. J. Bateman	24 - 3	East S. B.	20,600	6,600 00	5,370			0 19	400 113 77
1870	Bennett	8 - G.	Harriet	J. Foster Ober	24 - 3	Clinton Hill ave., Bri.	29,643	12,524 20	5,900	238,336	75,519 84	0 19	400 113 77
1870	Bennett Branch	8 - G.	Bennett	Geo. A. Clough	24 - 3	Dighton st., Bri.	9,903	4,846 70	3,008			400	
1870	Bignole	10 - G.	Bignole	C. J. Bateman	24 - 3	West Fourth st., S. B.	26,704	48,463 21	13,385	828,515	179,290 58	0 21	950 188 70
1870	Blackinton	9 Rooms P.	Blackinton	E. M. Wheelwright	24 - 2	Levin st., Orient Heights, E. B.	29,109		9,864	281,344	56,027 11	0 20	450 124 80
1870	Bowditch	15 - G.	Bowditch	E. M. Wheelwright	24 - 2	Green st., Dor.	29,109		9,864	281,344	56,027 11	0 20	450 124 80
1870	Bowditch	15 - G.	Bowditch	E. M. Wheelwright	24 - 2	Green st., Dor.	29,109		9,864	281,344	56,027 11	0 20	450 124 80
1870	Bowditch	15 - G.	Bowditch	E. M. Wheelwright	24 - 2	Green st., Dor.	29,109		9,864	281,344	56,027 11	0 20	450 124 80
1870	Brewster Annex	2 Rooms P.	Roger Wolcott	Schoolhouse Agent Department	34 - 1 Story	Morton st., Mat.	14,871	17,690 00	11,883		3,669 97	0 19	100 31 00
1870	Brighton	14 Rooms P.	Brighton	E. M. Wheelwright	24 - 3	Cambridge st., Bri.	41,871		11,883		135,877 98	0 19	700 120 06
1870	Bunker Hill	14 - G.	Bunker Hill	E. M. Wheelwright	24 - 4	Baldwin st., Chan.	19,600		5,880			700	
1870	Bunker Hill	8 Rooms P.	Bunker Hill	E. M. Wheelwright	24 - 2	Bunker Hill st., Chan.	24,000		3,033			400	
1870	Canterbury-street	2 - P.	Charles Sumner	Emerson & Fehner	24 - 2	Canterbury st., W. R.	20,121		1,346			100	
1870	Cape	8 - P.	Thomas N. Hart	Cummings & Sears	24 - 3	St. S. B.	12,554	5,145 31	3,361		34,716 35	0 18	300 115 72
1870	Carman	17 - G.	Carman	Grider J. F. Bryant	24 - 2	East st., Rox.	26,704	22,400 00	12,131		130,944 83	0 18	450 154 05
1870	Charles C. Perkins	10 Rooms P.	Prince	H. H. Atwood	24 - 2	St. S. B.	10,000	30,356 45	7,729	332,640	76,500 00	0 23	500 153 00
1870	Charles Sumner	10 - P.	Charles Sumner	Geo. A. Clough	24 - 2	Ashland st., Rox.	30,000	30,000 00	6,112	457,632	108,912 08	0 18	400 153 00
1870	Christianson High	2 Rooms P.	Bowditch	Sticks & Austin	14 - 4	Monument sq., Chan.	16,380	57,794 98	16,204	1,267,608	50,252 35	0 11	500 100 20
1870	Chestnut-avenue	2 Rooms P.	Bowditch	Sticks & Austin	14 - 4	Chestnut ave., J. P.	13,738		1,493			100	
1870	Chesle Burnham	9 Rooms P.	Lincoln	E. M. Wheelwright	24 - 2	East Third st., S. B.	17,136	6,277 40	5,800		60,887 10	0 20	450 135 30
1870	Christopher Columbus	24 - P.	Wheeler & Bishop	Wheeler & Bishop	14 - 3	East Third st., S. B.	12,528		11,427	727,068	175,588 35	0 24	1,200 146 32
1870	Christopher Gibson	14 - G.	Christopher Gibson	E. M. Wheelwright	24 - 3	Bowditch ave., Dor.	14,973		14,973	784,507	111,050 90	0 14	700 158 61
1870	Cliff	6 - P.	Shurtleff	Bryant & Rogers	24 - 3	Fat. S. B.	13,492	4,500 00	2,970		33,628 00	200	112 10
1870	Comins	13 Rooms G.	Comins	Richards & Park	24 - 4	Tremont st., Rox.	22,169		4,865			650	
1870	Common Building		Peabody & Stearns	Maguire, Walsh & Sullivan	14 - 2	Tremont Entrance to the Fenway, Rox.			9,000	561,229		0 23	
1870	Common-street	6 Rooms P.	Harvard	Franklin	24 - 3	Common st., Chan.	7,001	7,000 40	1,870			300	
1870	Cook	6 - P.	Franklin	Franklin	24 - 3	Croton st.	10,170	10,412 50	1,792			300	
1870	Copple	8 Rooms P.	Warren	James Mulcahy	24 - 2	Barlett st., Chan.	16,115	38,690 13	6,115		64,776 96	0 22	400 161 04
1870	Cottage-place	11 - P.	Warren	James Mulcahy	24 - 2	Cottage pl., Rox.	7,694		2,098			400	
1870	Cushman	16 - P.	Hancock	E. M. Wheelwright	24 - 2	Grove st., E. B.	20,714	14	5,190	416,416	71,183 31	0 17	200 125 45
1870	Cushman	16 - P.	Hancock	Grider J. F. Bryant	24 - 4	Parmenter st.	20,714	14	5,190		57,723 27	800	72 16
1870	Cyrus Allen	8 Rooms P.	Norcross	Geo. A. Clough	24 - 2	Seventh st., S. B.	16,500	7,033 00	5,800	244,160	88,572 08	0 20	450 122 18
1870	Dearborn	21 - G.	Dearborn	Edwin J. Lewis	14 - 3	Amesbury st., Rox.	37,104		15,562	680,100		0 19	1,000 122 18
1870	Dearborn	12 - G.	Dulaway	Geo. A. Clough	24 - 3	Amesbury st., Rox.	22,824	34,235 10	8,000	609,168	78,974 16	0 13	600 131 62
1870	Dearborn-avenue	4 - P.	Mary Hemenway	Grider J. F. Bryant	24 - 2	Dorchester st., Dor.	34,650		2,650			200	
1870	Dearborn High	6 Rooms P.	Norcross	Hartwell, Richardson & Driver	14 - 3	Talbot ave., Dor.	7,850		25,837	1,802,632	321,214 13	0 17	300 112 91
1870	Drake	6 Rooms P.	Norcross	Bryant & Rogers	24 - 3	East S. B.	10,000	8,000 00	2,582			400	
1870	Dudley	14 - G.	Dudley	L. Wenden	24 - 3	Dudley and Putnam sts., Rox.	28,339	8,000 00	12,070		132,480 05	700	188 20
1870	Dwight	14 - G.	Dwight	L. Wenden	24 - 4	West Springfield st.	19,125	22,623 00	5,531		40,338 95	700	57 63
1870	East Boston High	8 Rooms P.	Mary Hemenway	John Lyman Faxon	14 - 3	Marion st., E. B.	27,500	68,180 27	21,477	1,161,301	281,040 57	0 24	400 112 91
1870	Edgar Smith	8 Rooms P.	Mary Hemenway	Geo. H. Jones, Jr.	24 - 3	Centre st., Dor.	20,340		4,666			400	
1870	Edgar Smith	8 Rooms P.	Mary Hemenway	Grider J. F. Bryant	24 - 3	North Dorset st.	11,000		1,000			700	
1870	Edna Mendell	12 - P.	George Putnam	Andrew, Jacques & Rantoul	14 - 2	School st., W. R.	35,491	13,841 49	10,896	617,635	125,352 64	0 24	800 209 25
1870	Emerson	6 Rooms P.	Wells	Emerson	24 - 3	Poplar st.	8,924	7,000 00	2,155			400	
1870	Emerson	16 - G.	Emerson	Emerson	24 - 3	Prescott st., E. B.	39,952	8,000 00	6,610		101,585 78	800	126 08
1870	Emerson High	14 Rooms G.	Emerson	Geo. A. Clough	24 - 4	Montgomery st., Dor.	85,500	280,000 00	23,170		431,427 41	0 14	700 158 61
1870	Everett	14 Rooms G.	Everett	Emerson	24 - 4	West Northampton st.	39,409		5,845		53,000 00	700	75 71
1870	Everett	2 Rooms P.	Thomas Gardner	Grider J. F. Bryant	34 - 2	Albion st., Bri.	1,347		1,347			100	
1870	Farragut	14 - P.	Martin	Wheeler & Bishop	14 - 3	Kenwood rd., Rox.	27,912	36,450 00	12,912	632,630	154,149 98	0 24	700 220 21
1870	Fenwick-street	6 - P.	Charles Sumner	Franklin	24 - 3	Fenwick st., Rox.	23,000		3,033			700	
1870	Franklin	14 - G.	Franklin	Joseph H. Richards	24 - 4	Walham st.	16,420		5,400		40,845 67	700	58 35
1870	Francis Parkman	14 Rooms P.	Agassiz	Parkes & Deane	24 - 2	Walk Hill st., Forest Hills	30,000	9,000 00	7,013	486,537	121,936 08	0 25	700 174 18
1870	Frederick A. Whitney	14 - P.	Washington Alton	Whitney & Hood	24 - 2	Whitney st., Dor.	19,781		7,038	271,800	47,880 49	0 18	400 119 70
1870	Frederick W. Lincoln	13 - G.	Frederick W. Lincoln	Grider J. F. Bryant	24 - 2	Broadway st., B.	20,714	12,089 07	2,350			650	74 20
1870	Freeman	6 - P.	Freeman	Bryant & Rogers	24 - 3	Charter st.	5,217		2,350		28,127 02	800	72 16
1870	Frothingham	16 Rooms P.	Frothingham	Geo. A. Clough	24 - 3	Prospect st., Chan.	22,679	44,188 00	6,383	494,688	78,038 89	0 17	800 98 70
1870	Frothingham Annex	2 - P.	Frothingham	Schoolhouse Agent Department	34 - 1 Story	Prospect st., Chan.	22,679		2,173		2,993 94	100	98 70
1870	Gaston	14 - G.	Gaston	Geo. A. Clough	24 - 3	East Fifth st., S. B.	33,558	24,703 70	10,940		104,044 57	700	146 32
1870	George Putnam	10 - G.	George Putnam	Geo. A. Clough	24 - 2	Columbia ave., W. R.	31,750	13,102 87	7,229	330,112	56,749 05	0 19	500 133 50
1870	George-street	6 Rooms P.	Hugh O'Brien	Hugh O'Brien	24 - 3	George st., Rox.	18,894		5,045			300	
1870	Gilbert Stuart	14 - G.	Gilbert Stuart	E. M. Wheelwright	24 - 3	Richmond st., Dor.	31,417	15,048 00	8,212	603,690	114,038 58	0 19	700 162 94
1870	Girls' Latin		Peabody & Stearns	Maguire, Walsh & Sullivan	14 - 3	West Newton st.	37,480	82,212 31	18,530		234,563 30	0 19	700 162 94
1870	Glenway	2 Rooms P.	Oliver Wendell Holmes	Geo. A. Clough	34 - 1 Story	Tremont Entrance to the Fenway, Rox.			17,382	1,168,103	297,119 39	0 23	600 493 19
1870	Glenway Annex	2 - P.	Oliver Wendell Holmes	Geo. A. Clough	34 - 1	Glenway st., Dor.	2,184		2,184		3,168 08	100	31 69
1870	Grove	4 - P.	Phillips	Schoolhouse Agent Department	34 - 2	Glenway st., Dor.	2,173		2,173		2,933 87	100	31 69
1870	Hancock	14 - G.	Hancock	Charles Heath	24 - 2 Stories	Phillips st.	3,744		2,021			200	
1870	Hancock	14 - G.	Hancock	Charles Heath	24 - 4	Parmenter st.	36,942		6,120			700	
1870	Hancock Annex	2 Rooms P.	Hancock	Schoolhouse Department	24 - 1 Story	Parmenter st., Dor.	1,781		1,781		7,247 29	100	72 47
1870	Harbor View-street	2 - P.	Mary Hemenway	C. J. Bateman	24 - 2	Harbor View st., Dor.	27,500	20,000 00	2,825	125,440	15,032 64	0 12	200 75 16
1870	Harris	6 - P.	Mary Hemenway	Harvard	24 - 3	Adams st., Dor.	27,150		8,605			280	
1870	Harvard	10 - G.	Harvard	Harvard	24 - 3	Devens st., Chan.	16,306		6,852			450	











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